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POLYMER HANDBOOK

SECOND EDITION

J. BRANDRUP • E. H. IMMERGUT, Editors

with the collaboration of

W. McDOWELL

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VISCOSITY-MOLECULAR WEIGHT RELATIONSHIPS AND UNPERTURBED DIMENSIONS OF LINEAR CHAIN MOLECULES

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A. INTRODUCTION

1. THE VISCOSITY-MOLECULAR WEIGHT RELATIONSHIP

The limiting viscosity number $[\eta]$ of a solution which has long been called the intrinsic viscosity is defined as

$$[\eta] = \lim_{c \to 0} \frac{\eta - \eta_0}{\eta_0 c} \qquad (1)$$

in terms of the solvent viscosity η_0, the solution viscosity η and the solute concentration c. The concentration c is expressed in grams of solute per milliliter of solution or, more frequently, in grams of solute per 100 milliliters of solution, the limiting viscosity number being given in the reciprocal of these units, i.e. in milliliters per gram or in deciliters per gram. Here, following the IUPAC 1952-recommendations (1), we adopt the former unit. The quantity $[\eta]$ of a polymer solution is a measure of the capacity of a polymer molecule to enhance the viscosity, which depends on the size and the shape of the polymer molecule. Within a given series of polymer homologs, $[\eta]$ increases with the molecular weight M; hence it is a measure of M.

Table C gives the limiting viscosity number-molecular weight relationships for polymers in various solvents and at various temperatures. The table contains the constants of the equation

$$[\eta] = KM^a \qquad (2)$$

which is known as the Mark-Houwink-Sakurada equation.

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A. INTRODUCTION

1. THE VISCOSITY-MOLECULAR WEIGHT RELATIONSHIP

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in terms of the solvent viscosity η_0, the solution viscosity η and the solute concentration c. The concentration c is expressed in grams of solute per milliliter of solution or, more frequently, in grams of solute per 100 milliliters of solution, the limiting viscosity number being given in the reciprocal of these units, i.e. in milliliters per gram or in deciliters per gram. Here, following the IUPAC 1952-recommendations (1), we adopt the former unit. The quantity $[\eta]$ of a polymer solution is a measure of the capacity of a polymer molecule to enhance the viscosity, which depends on the size and the shape of the polymer molecule. Within a given series of polymer homologs, $[\eta]$ increases with the molecular weight M: hence it is a measure of M.

Table C gives the limiting viscosity number-molecular weight relationships for polymers in various solvents and at various temperatures. The table contains the constants of the equation

$$[\eta] = KM^a \qquad (2)$$

which is known as the Mark-Houwink-Sakurada equation.

It is now well established that for linear, flexible polymers, under special condition of temperature or solvent, (usually known as the Flory "theta" temperature or solvent (2)), the above equation becomes

$$[\eta]_\Theta = K_\Theta M^{0.50} \qquad (3)$$

The sign Θ in front of the temperature data in the table indicates that the viscosity constants were obtained under the Θ condition. Since Eq. (3) is approximately valid over the whole molecular weight range, K_Θ and a = 0.50 may be used, without modification outside of the molecular weight range in which they were determined. However, it must be noted that $[\eta]$ is rather sensitive to temperature in the vicinity of Θ, especially when M is higher than 5×10^5.

In ordinary good solvents, the constants K and a obtained are valid only within a rather limited range of M (3,4). It is, therefore, quite probable that the tabulated relationships are in error outside the indicated range of M (see eighth column in the table). As for the effect of temperature, however, both K and a mostly become insensitive to the temperature when a exceeds about 0.70, and they may be used in a ten-degree range on either side of temperature at which the constants were determined.

The method of determination of the molecular weight and the number of fractionated samples (Fr.) or whole polymer samples (W.P.) used to determine the $[\eta]$ -M relationship are also given in the ninth and the sixth or seventh columns, respectively. The abbreviations used are as follows.

(A) Methods yielding the number-average molecular weight, M_n.

CR.	cryoscopy.	EB.	ebullioscopy.
EG.	end-group titration.	OS.	osmotic pressure
VOS.	vapor pressure osmometry.		

(B) Methods yielding the weight-average molecular weight, M_w.

LS.	light scattering.	SA.	approach to the sedimentation equilibrium (Archibald's method).
SE.	sedimentation equilibrium.		

(C) Empirical or semi-empirical methods.

EM.	electron microscopy.	DV.	diffusion and viscosity
LV.	limiting viscosity number-molecular weight relationship.	MV.	melt viscosity-molecular weight relationship.
PR.	analysis of polymerization rate (yielding M_n).	SD.	sedimentation and diffusion.
		SV.	sedimentation and viscosity.

Thus, for example, the constants tabulated are for the $[\eta]$ -M relationships expressed in terms of M_n or M_w if the method is specified as OS or LS, respectively; i.e.,

$$[\eta] = K_n M_n^a \qquad (4)$$

or

$$[\eta] = K_w M_w^a \qquad (5)$$

The values of K_n and K_w, especially the former, are greatly influenced by the molecular weight distribution (MWD) of polymer samples, and caution must be taken in using these relationships.

To illustrate this effect, let us assume that:

(I) Eq. (2) is applicable to the molecule i with molecular weight M_i over the whole range of M; i.e.

$$[\eta]_i = K M_i^a \qquad (6)$$

(II) The weight fraction w_i of the molecules i in a given sample can be represented by a continuous exponential function,

$$w_i(M_i) = [y^{h+1}/\Gamma(h+1)] M_i^h \exp(-yM_i) \qquad (7)$$

$$y = h/M_n = (h+1)/M_w \qquad (8)$$

or by the log-normal function,

$$w_i(M_i) = AM_i \exp[-p^2(\ln M_i/M_0)^2] \qquad (9)$$

where h, A, p and M_0 are constants, and Γ represents the gamma function.

Then, since $[\eta] = \Sigma_i w_i [\eta]_i$, we obtain

$$K_n = K\Gamma(a+h+1)/h^a\Gamma(h+1) \qquad (10)$$

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$$K_w = K\Gamma(a+b+1)/(b+1)^a\Gamma(b+1) \quad (11)$$

for the exponential MWD, and

$$K_n = K(M_w/M_n)^{0.5a(a-1)} \quad (12)$$

$$K_w = K(M_w/M_n)^{0.5a(a-1)} \quad (13)$$

for the log-normal MWD (5). The values of K_n/K and K_w/K calculated by these equations are shown in Table 8. This table may be used for estimating an error due to MWD in determination of M.

As an example, let us assume that a given polymer sample has the exponential MWD with $M_w/M_n = 2.0$, while an available $[\eta]$ -M_n equation has been obtained for samples with a narrow MWD, e.g. $M_w/M_n = 1.1$. Further, let a be 0.70. Then, to find the correct value of M_n of the given sample from $[\eta]$, we must use the Equation (4) with $K_n = 1.54K$, instead of the available equation with $K_n = 1.06K$. Use of the latter would lead to an overestimate M_n' which is related to the correct M_n by

$$[\eta] = 1.54K\,M_n^{0.70} = 1.06K\,M_n'^{0.70} \quad (14)$$

The error amounts to about 70%, i.e. $M_n' = 1.7M_n$. Thus, application of the viscosity equation written in M_n is to be restricted to within a narrow class of samples, unless an appropiate correction is made. On the other hand, if an $[\eta]$ -M_w equation is available for the same pair of working and reference samples as above, we have

$$[\eta] = 0.951K\,M_w^{0.70} = 0.091K\,M_w'^{0.70} \quad (15)$$

instead of Eq. (14). Hence, the error in M_w amounts to only 6% ($M_w' = 0.94M_w$), which will be negligible for most practical purposes.

Based on the above consideration, we classify the heterogeneity of polymers in four classes, A to D, as shown in the last column of Table B, and indicate it in the tenth column of Table C as a measure of the heterogeneity of the reference samples used.

It is desirable that readers select their own relationship by inspecting these data on heterogeneity as well as those on the number of samples and molecular weight range. Generally speaking, a "good" $[\eta]$ -M relationship is one that has been obtained on the basis of M_w for at least four samples of classes A and B (exceptionally C) or on the basis of M_n for those of class A (exceptionally B), whose molecular weights range over at least one half orders of magnitude.

In the "Remarks" column of Table C, we have occasionally indicated by the letter R a "recommended" relationship for the convenience of readers. In the range of low molecular weight (mostly less than 10^4), the constant a becomes 0.50 irrespective of solvent. This type of relationship can not be used, even approximately, at higher molecular weights. This case is noted by the letter L. High conversion polymers are also marked by the letter H, where the $[\eta]$ -M relationships are less reproducible due to chain branching than are ordinary ones. The abbreviations used are as follows.

- A. narrow MWD polymers, or well-fractionated polymers. $M_w/M_n \leq 1.25$.
- B. ordinary fractionated polymers, $1.30 \leq M_w/M_n \leq 1.75$.
- C. poorly-fractionated polymers or most probable MWD polymers, $1.8 \leq M_w/M_n \leq 2.4$.
- D. wide MWD polymers, $M_w/M_n > 2.5$.
- H. high conversion polymers, including branches.
- L. limited to low molecular weight polymers.
- R. recommended relationship.

In this table, polymers are arranged according to their structure in subgroups. Within each subgroup, the polymers are, in principle, given in alphabetical order. Within each polymer, the solvents are also arranged in alphabetical order, followed by the mixed solvents.

Chain configurational data are occasionally given in the first column. The data given in parentheses refer to only one set of viscosity constants listed in the same row, while the data given without parentheses refer to a series of sets listed in the same and succeeding rows. Thus, for example, the data "N content, 13.9 wt%" are effective only for the sixth row of cellulose trinitrate, and the data "95%-cis, 1%-trans, 4%-1,2" are effective for the fourth to eighth rows of polybutadiene.

Table C is essentially based on the table published by Kurata and Stockmayer (3). Data were also taken from tables published by Peterlin (7), Meyerhoff (8), Elias (9) and Krause (10), the last one including a number of unpublished data on acrylic and methacrylic polymers. We are grateful to these authors. Thanks are tendered also to J. Brandrup and K. Kamide for their help with this compilation.

2. UNPERTURBED DIMENSIONS OF LINEAR CHAIN MOLECULES

The mean-square end-to-end distance $\langle r^2 \rangle$ of a linear chain molecule in solution is usually expressed in terms of two basic quantities, the unperturbed mean-square end-to-end distance $\langle r^2 \rangle_0$ and the expansion factor α, i.e.

$$\langle r^2 \rangle = \langle r^2 \rangle_0 \alpha^2 \tag{16}$$

The latter quantity α represents the effect of "long-range interactions" which can be described as an osmotic swelling of the chain by the solvent-polymer interactions, while the unperturbed dimension $\langle r^2 \rangle_0$ represents the effect of "short-range interactions" such as bond angle restrictions and steric hindrances to internal rotation. The steric hindrances are also influenced by the torques exerted on the chain by solvent molecules, but the effect is rather small in many cases (11).

For sufficiently long chain, $\langle r^2 \rangle_0$ becomes proportional to $\Sigma_i n_i l_i^2$, where n_i is the number of the ith-kind bond of length l_i. The quantity C_∞ defined by

$$C_\infty = \lim_{n \to \infty} \langle r^2 \rangle_0 / \Sigma_i n_i l_i^2 \tag{17}$$

is often called the characteristic ratio and it serves as a measure of the effect of short-range interactions.

The freely rotating state is a hypothetical state of the chain in which the bond angle restrictions are retained, but the steric hindrances to internal rotation are released. The mean-square end-to-end distance of the freely rotating chain $\langle r^2 \rangle_{0f}$ can be readily calculated from the given basic structure of the chain. For instance, if the chain consists of only one kind of bond of length l, we obtain

$$\langle r^2 \rangle_{0f} = nl^2 [(1 - \cos\theta)/(1 + \cos\theta)] \tag{18}$$

where n is the number of bonds and θ is the supplement of the valence bond angle. For vinyl polymer chains, $l = 0.154$ [nm], $\cos\theta = 1/3$, and $n = M/m = 2M/M_0$; and hence,

$$(\langle r^2 \rangle_{0f}/M)^{1/2} = 0.308/M_0^{1/2} = 0.218/m^{1/2} \text{ (nm)} \tag{19}$$

where M_0 is the molar weight of the repeating unit and m is the average molar weight per skeletal link. Similar expressions for $r_{0f} (= \langle r^2 \rangle_{0f}^{1/2})$ can be obtained also for more complicated chains. The results are summarized in Table D.

The ratio of $\langle r^2 \rangle_0$ to $\langle r^2 \rangle_{0f}$, then, represents the effect of steric hindrance on the average chain dimension:

$$\sigma = r_0/r_{0f} = (\langle r^2 \rangle_0/\langle r^2 \rangle_{0f})^{1/2} \tag{20}$$

The quantity σ is independent of n. Table E gives a list of the unperturbed dimensions of linear chain molecules which were obtained under various conditions of solvent and temperature. The values of $r_0/M^{1/2}$, $r_{0f}/M^{1/2}$, σ and C_∞ are given, together with the experimental values of S_{0z}/M_w, a_p or K_θ from which r_0 was computed. S_{0z} which is the abbreviation of $\langle S^2 \rangle_{0z}$ is the z-average value of the unperturbed radius of gyration, a_p is the persistence length and K_θ is the viscosity constant corresponding to K_θ in Eq. (3). The methods used to determine these quantities are also indicated in the tenth column of the table by using the following abbreviations.

(A) Light scattering

- LT, Zimm's plot in a theta solvent yielding $S_{0z}/M_w^{1/2}$. After a heterogeneity correction is made, the tabulated value of $r_0/M^{1/2}$ ($= 6^{1/2} S_{0w}/M_w^{1/2}$) is obtained.
- LD, dissymmetry method in a theta solvent. Less reliable for heterogeneous samples than the former method.
- LG, Zimm's plot in good solvents yielding $S_{0z}/M_w^{1/2}$. After corrections for the excluded volume effect and heterogeneity are made, the tabulated value of $r_0/M^{1/2}$ is obtained (3, 12).

(B) X-ray small angle scattering

- XS, the persistence length a_p is obtained irrespective of the solvent nature. The tabulated values of $r_0/M^{1/2}$ are the asymptotic values for infinitely high molecular weight, (13, 14).

(C) Limiting viscosity number

- VT, viscosity-molecular weight relationship in a theta solvent, Eq. (3). $r_0/M^{1/2}$ is calculated by the Flory and Fox relation, $K_\theta = \Phi_0 (r_0/M^{1/2})^3$. The following values of Φ_0 were used:
  - 2.1×10^{23} for well fractionated polymers (class A in Table C);
  - 2.5×10^{23} for ordinary fractionated polymers (class B);
  - 2.1×10^{23} for poorly fractionated or unfractionated polymers (class C or D).
- VG, viscosity-molecular weight relationship in good solvents. K_θ was estimated by using the Kurata-Stockmayer-Fixman plot (3, 4) or other analogous plots (12).

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VA, viscosity in good solvents. The correction of excluded volume effect is made by using the Flory-Krigbaum-Orofino theory of the second virial coefficient A_2 or other analogous theories (12).

(D) Method yielding the temperature dependence of r_o.

ST, stress-temperature coefficient of undiluted or swollen samples.

The polymers are arranged in Table E in the same order as in Table C. For each polymer, smoothed values of $r_o/M^{1/2}$, σ and C_∞, which were mostly obtained by VT or VG, are given in the first line, followed by some typical values obtained by more direct methods such as LT or XS. The listed values of $r_o/M^{1/2}$ sometimes scatter appreciably, reflecting the difficulty, both experimental and theoretical, involved in determination of this quantity. Especially in the case of cellulosic chains, the right magnitude of r_o is yet in controversy (542, 549, 3, 691, 696, 686, 678, 686, 12). In recent papers, emphasis has often been put on the effect of temperature or solvent on the unperturbed dimensions. These data are put together at the end of the tabulation for each polymer. Table E is also based on the tables published by Kurata and Stockmayer (3).

B. EFFECT OF MOLECULAR WEIGHT DISTRIBUTION ON VISCOSITY CONSTANT, K

M_w/M_n	a = 0.5		a = 0.6		a = 0.7		a = 0.8		a = 0.9		a = 1.0		Class
	K_n/K	K_w/K	K_n/K	K_w/K	K_n/K	K_w/K	K_n/K	K_w/K	K_n/K	K_w/K	K_n/K	K_w/K	
1 - MOLECULAR WEIGHT DISTRIBUTION: EXPONENTIAL TYPE, EQ. (7)													
30	4.87	0.890	6.91	0.897	9.85	0.911	14.18	0.923	20.56	0.963	30	1	D
15	3.46	0.892	4.57	0.900	6.08	0.914	8.16	0.935	11.02	0.964	15	1	D
10	2.82	0.896	3.59	0.902	4.69	0.917	5.91	0.937	7.67	0.965	10	1	D
5	2.03	0.907	2.60	0.913	2.85	0.925	3.42	0.943	4.12	0.968	5	1	D
3	1.60	0.921	1.78	0.926	2.02	0.936	2.29	0.952	2.62	0.979	3	1	D
2	1.33	0.940	1.43	0.943	1.54	0.951	1.68	0.963	1.83	0.979	2	1	C
1.75	1.25	0.948	1.33	0.951	1.42	0.958	1.51	0.968	1.63	0.982	1.75	1	B
1.60	1.18	0.959	1.23	0.961	1.28	0.967	1.36	0.975	1.42	0.986	1.50	1	B
1.25	1.09	0.975	1.12	0.977	1.15	0.980	1.18	0.985	1.21	0.991	1.25	1	A
1.10	1.04	0.989	1.05	0.989	1.06	0.991	1.07	0.993	1.09	0.996	1.10	1	A
2 - MOLECULAR WEIGHT DISTRIBUTION: LOG. NORMAL TYPE, EQ. (9)													
30	3.58	0.654	6.12	0.665	7.57	0.700	11.58	0.762	18.32	0.858	30	1	D
15	2.76	0.718	3.67	0.723	5.01	0.753	7.03	0.806	10.13	0.895	15	1	D
10	2.37	0.750	3.02	0.759	3.94	0.785	5.25	0.832	7.16	0.902	10	1	D
5	1.83	0.818	2.17	0.824	2.61	0.845	3.19	0.879	3.96	0.930	5	1	D
3	1.51	0.872	1.69	0.877	1.92	0.891	2.21	0.916	2.56	0.952	3	1	D
2	1.30	0.917	1.39	0.920	1.51	0.930	1.65	0.946	1.81	0.969	2	1	C
1.75	1.23	0.932	1.31	0.935	1.40	0.943	1.50	0.956	1.61	0.975	1.75	1	B
1.50	1.16	0.951	1.21	0.953	1.27	0.958	1.34	0.968	1.41	0.982	1.50	1	B
1.25	1.09	0.973	1.11	0.974	1.14	0.977	1.17	0.982	1.21	0.990	1.25	1	A
1.10	1.04	0.988	1.05	0.989	1.06	0.990	1.07	0.992	1.08	0.996	1.10	1	A

C. TABLES OF VISCOSITY-MOLECULAR WEIGHT RELATIONSHIPS. $[\eta] = KM^a$

Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	W.P.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
1. MAIN-CHAIN ACYCLIC-CARBON POLYMERS										
1.1 POLY(DIENES)										
Poly(butadiene)										
98%-cis, 2%-1,2	benzene	30	33.7	0.715	9	--	5 - 50	OS	A,R	15
	isobutyl acetate	θ 20.5	165	0.50	6	--	5 - 50	OS	A	15
	toluene	30	30.5	0.725	9	--	5 - 50	OS	A	15
99%-cis, 1%-trans 4%-1,2	benzene	30	8.5	0.78	4	--	15 - 50	LS	A	16
	cyclohexane	20	11.2	0.75	4	--	15 - 50	LS	A	16
	6-methyl-3-heptanone	θ 19.6	150	0.50	4	--	15 - 35	LS	B	17
	3-pentanone	θ 10.3	152	0.50	4	--	10 - 25	LS	B	17
	toluene	30	33.9	0.688	8	--	10 - 65	OS	A	18
94%-cis, 4%-trans, 2%-1,2	benzene	25	41.4	0.70	8	--	9 - 120	OS	A	19
	dioxane	θ 20.2	205	0.50	8	--	9 - 120	OS	A	19
92%-cis, 3%-trans, 5%-1,2	benzene	32	10	0.77	13	--	10 - 160	LS	B,R	20
51%-trans, 43%-cis, 6%-1,2	toluene	30	39	0.719	6	--	11 - 23	OS	A	21
71%-trans, 4%-cis, 25%-1,2	cyclohexane	25	12	0.77	8	--	230 - 880	LS	C	22
79%-trans, 21%-cis,	cyclohexane	20	36	0.70	12	--	22 - 130	LS	B,R	23
97%-trans, 3%-1,2	cyclohexane	40	28.2	0.70	7	--	4 - 17	LS	B	24
	toluene	30	29.4	0.763	6	--	5 - 16	OS	A	25
ca. 100%-cis	benzene	32	14.5	0.76	8	--	18 - 50	LS	A	26
	heptane/hexane (1/1 vol)	20	138	0.53	5	--	?	SD	A	27
65%-1,2, 25%-trans, 10%-cis	toluene	25	110	0.62	8	--	7 - 70	OS	B	28
5°C-emulsion, randomly branched	3-pentanone	θ	$24\ M^{2/3}/[\eta]^{4/3} = 7.15 + 3.47M$		10	--	10 - 100	OS	C	29
50 °C-emulsion, randomly branched	benzene	θ	$5\ M^{2/3}/[\eta]^{4/3} = 4.61 + 0.328M$		16		5 - 124	OS	C	29
Poly(butadiene-co-acrylonitrile), Buna-N rubber	acetone	25	50	0.64	5	--	2.5 - 10	OS	B	28
	benzene	25	13	0.55	5	--	2.5 - 10	OS	B	28
	chloroform	25	54	0.68	5	--	2.5 - 10	OS	B	28
	toluene	25	49	0.64	7	--	2.5 - 40	OS	B	28
Poly(butadiene-co-styrene), Buna-S, GR-S, or SBR rubber	benzene	25	52.6	0.66	24	--	1 - 160	OS		45
		25	54	0.66	8	--	1 - 166	OS	B	46
	cyclohexane	30	31.6	0.70	6	--	5 - 25	OS	A	47
	2-pentanone	θ 21	185	0.50	6	--	5 - 25	OS	A	47
	toluene	25	52.5	0.667	28	--	2.5 - 50	OS	B	28
		30	16.5	0.78	--	9	3 - 35	OS		48
		30	37.9	0.71	6	--	5 - 20	OS	A	47
linear fraction	toluene	30	21.4	0.74	15	--	3 - 20	OS	A,R	41
branched fraction	toluene	30	535	0.48	20	--	20 - 100	OS	B	41
Poly(2-tert-butylbutadiene)	benzene	21	4.3	0.80	--	8	6 - 90	SD	A	30
	octane	21	4.2	0.80	--	7	6 - 35	SD	A	30
Poly(chloroprene)										
Neoprene CG	benzene	25	2.02	0.89	10	--	6 - 150	OS	B	31
Neoprene GN	benzene	25	14.6	0.73	16	--	2 - 96	OS	B	32
Neoprene W	benzene	25	15.5	0.71	8	--	5 - 100	OS	B	33
		25	16.5	0.72	9	--	5 - 80	LS	B,R	34
	butanone	θ 25	113	0.50	7	--	16 - 300	LS	A	35

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Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
Poly(chloroprene) (Cont' d.)										
Neoprene W (Cont' d.)	butyl acetate	25	37.8	0.62	7	--	15 - 300	LS	A	35
	carbon tetrachloride	25	22.1	0.69	7	--	15 - 300	LS	A	35
	cyclohexane	θ 45.5	107	0.60	7	--	15 - 70	LS	B	34
type, unspecified	toluene	25	50	0.615	13	--	4 - 120	OS	B	28
Poly(isoprene)										
natural rubber	benzene	30	18.5	0.74	--	4	8 - 28	OS	C	37
	cyclohexane	27	80	0.70	--	1	ca 185	LS,SD	C	38
	2-pentanone	θ 14.5	119	0.50	--	4	8 - 28	OS	C	87
	toluene	25	50.2	0.667	20	--	7 - 100	OS	B,R	39
synthetic cis	hexane	20	68.4	0.58	3	--	5 - 80	SD	A	40
	toluene	30	8.51	0.77	5	--	20 - 100	LS	A	41
86-91%-cis	toluene	30	20.0	0.728	--	12	14 - 580	LS	A,R	42
		30	15	0.74	--	16	2 - 15	PR	A	43
	2,2,4-trimethylpentane	30	22.2	0.653	--	8	23 - 580	LS	A	42
	heptane/propanol (78/22 vol)	30	37	0.63	--	6	43 - 580	LS	A	42
84%-cis, 14%-trans, 2%-1,2	benzene	25	13.3	0.78	20	--	2 - 80	OS	B	44
		25	11.2	0.78	25	--	2 - 60	OS	B	44
	dioxane	θ 34	145	0.50	30	--	2 - 50	OS	B	44
gutta percha	benzene	25	36.6	0.71	9	--	0.2 - 5	OS	A,R	19
	dioxane	θ 47.7	191	0.50	9	--	0.2 - 6	OS	A	19
	propyl acetate	θ 60	232	0.50	--	3	10 - 20	OS	C	37
synthetic trans.	benzene	32	43.7	0.65	24	--	8 - 140	LS	C	26
Poly(1,1,2-trichloro-butadiene)	benzene	25	31.6	0.66	11	--	25 - 120	LS		36
				1.2 POLY(ALKENES)						
Poly(alkene) C_{10}-C_{18}	toluene	25	12.7	1.04	12	--	2 - 18	LS	B	85
Poly(alkene) C_{12}-C_{18}	octane	38	21.	0.61	10	--	4 - 700	LS	B	87
Poly(1-butene).										
atactic	anisole	θ 86.2	123	0.50	3	--	10 - 130	LS	C	81
	benzene	30	22.4	0.73	11	--	0.03 - 0.5	EG	B,L	82
	ethylcyclohexane	70	7.34	0.80	5	--	4 - 130	LS	C	81
isotactic	ethylcyclohexane	70	7.34	0.80	4	--	8 - 94	LS	A	81
	decalin	115	9.49	0.73	6	--	4.6 - 90	LS		83
	heptane	35	4.73	0.80	6	--	4.5 - 90	LS		83
		60	15.0	0.69	6	--	4.6 - 90	LS		83
	nonane	80	5.85	0.80	4	--	11 - 94	LS	A	81
Poly(ethylene)										
low pressure	biphenyl	θ 127.5	323	0.50	4	--	2 - 30	LV	B	58
	1-chloronaphthalene	125	138	0.68	?	?	?	LS	?	59
		125	18.4	0.78	10	--	5 - 100	LS		60
		125	43	0.67	10	--	5 - 100	LS	C,D	61
		129	27.1	0.71	26	--	5 - 100	LS	D	62
	decalin	135	67.7	0.67	--	>10	3 - 100	LS	D	63
		135	46	0.73	23	--	3 - 64	LS		64
		135	62	0.70	7	--	2 - 105	LS	B,R	65,66
		135	58.5	0.725	9	--	0.4 - 50	OS	B	67,68
	decanol	θ 153.3	302	0.50	?	--	2 - 105	LV	B	68
	diphenyl ether	θ 161.4	285	0.50	6	--	2 - 105	LS	B	65
	diphenylmethane	θ 142.2	315	0.50	?	--	2 - 105	LV	B	68
	dodecanol	θ 137.3	307	0.50	5	--	2 - 105	LV	B	68
		θ 138	316	0.50	--	8	8 - 92	LS	D	69
	octanol	θ 180.1	286	0.50	?	--	2 - 105	LV	B	58
	tetralin	105	16.2	0.83	4	--	13 - 57	LS	C	70
		120	23.6	0.78	30	--	5 - 100	LS		60
		120	22.8	0.77	20	--	0.3 - 50	LS	B	71
		130	43.5	0.76	6	--	2 - 30	OS	B	71

Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
Poly(ethylene) (Cont'd.)										
low pressure	tetralin (Cont'd.)	130	51	0.725	9	--	0.4 - 50	OS	B,R	72
		130	37.8	0.72	--	10	8 - 17	LS	D	73
	p-xylene	105	16.5	0.89	4	--	13 - 60	LS	C	70
		105	17.6	0.83	8	--	1 - 18	OS	C	74
		105	51	0.725	?	--	0.4 - 60	LV	B,R	75
	paraffin wax (M_n = 390±10)	150	(42)	(0.65)	9	--	0.04 - 11	LS	D	76
high pressure	decalin	70	38.73	0.738	8	--	0.2 - 5.5	OS	B	77
	p-xylene	75	135	0.63	--	22	0.2 - 7.6	OS	D	78
		81	105	0.63	?	--	1 - 10	OS	D	79
Poly(ethylene) (normal paraffin)	carbon tetrachloride	20	$[\eta] = 1.14 \times 0.104\ M$		--	?	0.024 - 0.048	CR	A	80
Poly(ethylene-co-propylene-co-diene), EPDM rubber	cyclohexane	40	53.1	0.75	20	--	3 - 30	OS	A	41
Poly(isobutene)	anisole	θ 105	91	0.50	--	--	18 - 188	LV	B	49
	benzene	θ 24	107	0.50	15	--	18 - 188	LV	B	49
		25	89	0.53	9	--	0.05 - 126	OS,CR	B,R	50
		30	61	0.58	9	--	0.05 - 126	OS,CR	B	50
		40	43	0.60	9	--	0.05 - 126	OS,CR	B	50
		60	26	0.66	9	--	0.05 - 126	OS,CR	B	50
	carbon tetrachloride	30	29	0.68	12	--	0.05 - 126	OS,CR	B	50
	cyclohexane	25	40	0.72	6	--	14 - 24	OS	B	51
		30	27.0	0.69	7	--	4 - 71	OS	A,R	52
		30	26.6	0.69	12	--	0.05 - 126	OS,CR	B	50
	decalin	25	22	0.70	6	--	590 - 1080	LS	A-B	53,54
	diisobutylene	20	36	0.64	23	--	1 - 130	OS	A,R	55,52
		25	130	0.50	5	--	0.4 - 2.5	OS	A,L	56
	phenetol	θ 86	91	0.50	4	--	5 - 188	LV	B	49
	toluene	0	40	0.80	8	--	1 - 146	LV	B	80
		15	24	0.65	6	--	1 - 146	LV	B	80
		25	87	0.56	6	--	14 - 24	OS	B	51
		30	20	0.67	5	--	1 - 146	LV	B,R	50
		50	20	0.68	6	--	1 - 146	LV	B	50
		60	13.5	0.71	4	--	11 - 146	LV	B	50
		90	12.6	0.72	3	--	46 - 140	LV	B	50
Poly(isobutene-co-isoprene), butyl rubber	carbon tetrachloride	28	10.7	0.78	6	--	10 - 30	OS	A	57
	toluene	25	66	0.60	5	--	15 - 30	OS	A	57
		30	31.4	0.678	8	--	10 - 30	OS	A	57
Poly(4-methyl-1-pentene)	diisobutylene	20	42	0.63	6	--	1 - 20	LS	A	85
Poly(1-octene)	bromobenzene	25	2.90	0.78	5	--	25 - 400	LS	A	84
	cyclohexane	20	5.75	0.78	6	--	25 - 400	LS	A	84
	phenetol	θ 50.4	65.5	0.50	4	--	60 - 400	LS	A	84
Poly(propylene)										
atactic	benzene	25	27.0	0.71	C	--	6 - 31	OS	A	88
		30	33.8	0.67	6	--	2 - 34	OS	A	89
	1-chloronaphthalene	θ 74	182	0.50	3	--	4 - 33	OS	A	90
	cyclohexane	25	16.0	0.80	8	--	6 - 31	OS	A	88
		30	20.9	0.76	6	--	2 - 34	OS	A	89
	cyclohexanone	θ 92	172	0.50	4	--	1.5 - 33	OS	A	90
	decalin	135	15.8	0.77	6	--	2 - 39	OS	A	91
		135	11.0	0.80	6	--	2 - 62	LS	A,R	88
		135	54.2	0.65	--	10	2 - 72	LS	D	92
	isopentyl acetate	θ 34	165.5	0.50	6	--	2 - 34	OS	A	89
	phenyl ether	145	192	0.67	3	--	3.7 - 21	OS	A	90
		θ 153	120	0.50	3	--	3.7 - 21	OS	A	90
	tetralin	130	1.24	0.90	--	--	?	?		93
	toluene	20	21.9	0.725	7	--	2 - 34	OS	A	89
isotactic	biphenyl	θ 126.1	152	0.50	4	--	5 - 42	LV	A	94
	1-chloronaphthalene	139	21.5	0.67	11	--	10 - 170	LS		95

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Polymer	Solvent	Temp. (°C)	K x 10^3 [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
Poly(propylene) Cont' d.)										
isotactic (Cont' d.)	1-chloronaphthalene	145	4.9	0.80	9	--	5 - 63	LS	A,R	98
	decalin	135	11.0	0.80	6	--	3 - 62	LS	A,R	88
		135	10.0	0.80	4	--	10 - 100	LS	A,R	97
	dibenzyl ether	θ 183.2	106	0.50	4	--	5 - 42	LV	A	94
	diphenyl ether	θ 142.8	137	0.50	4	--	5 - 42	LV	A	94
		θ 145	132	0.50	4	--	3 - 48	OS	A	90
		153	112	0.54	4	--	3 - 48	OS	A	90
	tetralin	135	2.5	1.0	5	--	2 - 11	OS		98
		135	9.17	0.80	9	--	4 - 54	OS	A,R	96
	p-xylene	85	96	0.63	12	--	?	OS		99
syndiotactic	heptane	30	31.2	0.71	5	--	9 - 45	LS	A	100

1.3 POLY(ACRYLIC ACID) AND DERIVATIVES

Poly(acrylamide)	water	30	6.31	0.80	7	--	2 - 50	SD	B	101
		30	68	0.66	--	21	1 - 20	PR	C	102
Poly(acrylic acid)	1,4-dioxane θ	30	76	0.50	--	4	13 - 82	OS	B	104
--, sodium salt	aqueous NaOH (2M)	25	42.2	0.64	12	--	4 - 50	OS	C	105
	aqueous NaCl (0.012M)	20	--	0.93	7	--	7 - 180	LV	B	106
	(1M)	25	16.47	0.90	12	--	4 - 50	OS	C	105
	aqueous NaBr (1.5M) θ	15	165	0.50	5	--	6 - 64	LV	C	107
	θ	15	194	0.50	4	--	12 - 88	LS	C	108
	(0.5M)	15	52.7	0.628	7	--	1 - 50	LV	C	109
		25	50.6	0.656	7	--	2 - 80	LV	C,R	110
	(0.1M)	15	25.4	0.755	7	--	1 - 50	LV	C	109
		25	31.2	0.755	7	--	2 - 80	LV	C	110
	(0.05M)	15	28.1	0.77	7	--	1 - 50	LV	C	109
	(0.025M)	15	18.3	0.84	7	--	1 - 50	LV	C	109
		25	17.6	0.85	7	--	2 - 80	LV	C	110
	(0.01M)	15	13.6	0.89	7	--	1 - 50	LV	C	109
		25	13.2	0.91	7	--	2 - 80	LV	C	110
	(0.005M)	15	(44.2)	0.83	7	--	1 - 50	LV	C	109
	(0.0025M)	15	(24.9)	0.89	7	--	1 - 50	LV	C	109
	aqueous NaSCN									
	(1.25M) θ	30	154	0.60	6	--	6 - 64	LV	C	107
	θ	30	121	0.50	4	--	12 - 83	LS	C	111
Poly(acrylonitrile)	γ-butyrolactone	20	34.3	0.730	5	--	4 - 40	LV(LS)	A,R	134
(polymerized at -30°C)		30	57.2	0.67	6	--	4 - 30	SA	B	135
(polymerized at 60°C)		30	34.2	0.70	6	--	6 - 30	SA	B	135
		30	40.0	0.69	--	5	15 - 55	LS	D	136
		50	28.7	0.740	5	--	4 - 40	LS	A	134
	dimethylformamide	20	17.7	0.78	5	--	7 - 80	LS	B	137
		25	16.6	0.81	5	--	5 - 27	SD	B	138
		25	24.3	0.75	--	4	3 - 25	LS	C	139
		25	39.2	0.75	--	16	3 - 100	OS	C	140
	(deionized DMF)	25	15.5	0.80	3	6	3 - 10	LS,SD	B-C	141
		25	57.4	0.73	--	8	0.3 - 1.5	EG	L	142
		25	39.6	0.75	--	7	4 - 30	OS	C	143
		25	44.2	0.70	--	7	2 - 20	LS	C	143
		25	68.8	0.65	--	21	8 - 140	LS	C	144
(polymerized at -30°C)		30	29.6	0.74	7	--	4 - 30	SA	B	136
(polymerized at 60°C)		30	20.9	0.76	7	--	6 - 30	SA	B	135
		30	33.5	0.72	--	6	16 - 48	LS	D	136
		35	27.8	0.76	9	--	3 - 58	DV	B	145
		35	21.7	0.746	12	--	9 - 96	LS	A,R	134
		50	20.0	0.752	22	--	4 - 102	LV	A	134
	dimethylacetamide	80	30.7	0.761	6	--	2 - 40	LV	A	134

Polymer	Solvent	Temp. (°C)	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	W.P.	Mol. Wt. Ranges $M \times 10^{-4}$	Method	Remarks	Ref.
Poly(acrylonitrile)	dimethylacetamide	35	27.5	0.767	6	--	2 - 40	LV	A	134
(Cont' d.)	(Cont' d.)	50	27.4	0.764	6	--	2 - 40	LV	A	134
	dimethyl sulfoxide	20	32.1	0.750	9	--	9 - 40	LV	A	134
		30	28.3	0.758	9	--	9 - 40	LV	A	134
		140	20.9	0.75	--	6	4 - 40	LS		148
	ethylene carbonate	50	29.5	0.718	12	--	7 - 40	LV	A	134
	hydroxyacetonitrile	20	40.9	0.697	8	--	4 - 34	LV	A	134
		50	35.4	0.707	8	--	4 - 34	LV	A	134
	aqueous HNO_3 60%)	0	33.9	0.740	6	--	2 - 40	LV	A	134
		20	30.7	0.747	5	--	4 - 40	LV	A	134
Poly(benzyl acrylate)	butanone	35	0.587	0.883	?		?	OS		337
Poly(butyl acrylate)	acetone	25	6.85	0.75	--	8	5 - 27	LS	C	112
Poly(1,1-dihydroper-fluorobutyl acrylate)	benzofluoride	26.6	13	0.58	7	3	20 - 200	LS	B	113
	methyl perfluorobutyrate	26.6	12	0.60	7	3	20 - 200	LS	B	113
Poly(N,N-dimethylacryl-amide)	methanol	25	17.5	0.68	--	8	5 - 122	LS	C	103
	water	25	23.2	0.81	--	6	5 - 122	LS	C	103
		40	20.0	0.65	--	4	11 - 122	LS	C	103
Poly(ethyl acrylate)	acetone	25	51	0.59	7	--	33 - 450	LS	B,R	114
		30	20.0	0.66	5	--	16 - 50	OS	B,R	115
	benzene	30	27.7	0.67	--	7	6 - 67	OS	C	116
	butanone	30	2.68	0.80	5	--	48 - 700	LS	B-C	117
	chloroform	30	31.4	0.68	--	5	9 - 54	OS	C	116
	ethyl acetate	30	26.0	0.66	--	5	9 - 54	OS	C	116
Poly(hexadecyl acrylate)	methanol	30	48.7	0.55	--	6	6 - 70	OS	C	116
	heptane	20	1.74	0.82	6	--	1 - 10	LS	B	118
Poly(isopropyl acrylate)	acetone	30	13.0	0.69	6	--	6 - 30	LS	B	119
	benzene	25	14.9	0.70	9	--	7 - 70	OS	B	120
		25	12.4	0.703	20	--	4 - 100	LS	B,R	121
		30	11.8	0.71	4	--	7 - 80	LS	B	119
	bromobenzene	25	11.3	0.704	20	--	4 - 100	LS	B	121
		60	11.6	0.698	20	--	4 - 100	LS	B	121
	chloroform	30	14.1	0.72	5	--	7 - 80	LS	B	122
(isotactic)	2,2,3,3-tetrafluoro-propanol	25	19.1	0.697	7	--	10 - 65	LS	B	121
(atactic)		25	17.3	0.703	6	--	8 - 110	LS	B	121
(syndiotactic)		25	15.9	0.708	6	--	20 - 110	LS	B	121
(isotactic)		60	17.9	0.692	4	--	10 - 65	LS	B	121
(atactic and syndiotactic)		60	14.7	0.704	6	--	20 - 110	LS	B	121
Poly(methyl acrylate)	acetone	20	(7.40)	(0.76)	--	4	7 - 82	OS		123
		25	6.5	0.77	8	--	28 - 160	LS	B,R	124
		25	19.8	0.66	9	--	30 - 250	LS	B	125
		30	28.2	0.62	7	--	4 - 45	OS	B	126
	benzene	25	2.58	0.86	4	--	80 - 130	OS		127
		30	4.5	0.78	7	7	7 - 180	LS		128
		30	3.56	0.726	6	--	25 - 190	LS	B,R	129
		30	4.59	0.705	6	--	15 - 140	OS	B	129
		35	12.8	0.71	--	5	6 - 30	OS	C	130
	butanone	20	3.5	0.81	13	--	6 - 240	LS	A-B,R	128
		25	14.1	0.67	4	--	17 - 68	LS	B	131
		30	3.97	0.772	6	--	25 - 190	LS	B	129
		35	(24)	(0.61)	--	3	5 - 47	LV	C	132
	diethyl malonate	30	3.51	0.793	4	--	50 - 190	LS	B	129
	ethyl acetate	30	13	0.69	--	8	24 - 148	LS	A	133
	isopentyl acetate	θ 82.5	68	0.50	6	--	20 - 160	LS	B	129
	2-methylcyclohexanol	θ 56.0	68	0.50	4	--	40 - 105	LS	B	129
	toluene	30	7.79	0.697	6	--	25 - 180	LS	B	129
		35	21	0.60	--	7	12 - 69	LS	A	133
	butanone/2-propanol (42/58 vol)	θ 20	81	0.50	5	--	29 - 140	LS	B	124

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POLY(ACRYLIC ACID) AND DERIVATIVES

Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	W.P.	Mol. Wt. Range M x 10^{-4}		Method	Remarks	Ref.
Poly(methyl acrylate) (Cont'd.)	butanone/2-propanol (1/1 vol)	θ 27.5	34.4	0.50	4	--	14	- 83	LS	C	108
		θ 30	72	0.50	4	--	60	- 190	LS	B	129
(branched)	(42/58 vol)	θ 20	290	0.40	8	--	37	- 250	LS	B	125
Poly(1-methylphenyl acrylate)	butyl acetate	25	14.7	0.63	8	--	2	- 110	SD	A	346
Poly(morpholinocarbonyl-ethylene)	dimethylformamide	25	18	0.65	?		?		LS	C	338
	aqueous NaCl (0.1M)	20	64	0.68	?		?		LS	C	338
Poly(piperidinocarbonyl-ethylene)	dimethylformamide	25	22	0.56	?		?		LS	C	338
Poly(propyl acrylate)	butanone	30	15.0	0.687	4	--	71	- 161	LS	A	117

1.4 POLY(α-SUBSTITUTED ACRYLIC ACID) AND DERIVATIVES

Poly(benzyl methacrylate)	benzene	30	1.03	0.82	--	9	17	- 120	LS		339
Poly(butyl methacrylate)	acetone	25	18.4	0.62	6	--	100	- 600	LS	A	150
	benzene	30	(4.0)	(0.77)	--	3	8	- 300	LS		151
	butanone	22	1.56	0.81	10	--	25	- 260	LS	B	152
		25	9.7	0.68	5	--	11	- 670	LS	A	150
		30	(1.16)	(0.89)	3	--	67	- 132	OS	C	153
	chloroform	20	2.9	0.78	8	--	4	- 800	LS	B,R	154
		25	4.37	0.80	6	--	8	- 80	OS		155
	2-propanol	θ 21.5	29.5	0.50	8	--	30	- 260	LS	B	152
		θ 21.5	38	0.50	9	--	4	- 800	LS	B,R	164
		θ 23.7	36.6	0.50	5	--	40	- 170	LS	B	156
Poly(tert-butyl methacrylate)	butyl acetate	25	22.0	0.63	0	--	46	- 870	LS	A	157
Poly(4-tert-butylphenyl methacrylate)	acetone	20	5.75	0.68	15	--	6	- 350	LS		340
	bromobenzene	20	4.1	0.71	7	--	15	- 2500	LS		341
	carbon tetrachloride	20	4.1	0.71	7	--	20	- 2500	LS		341
	chloroform	20	2.4	0.78	15	--	6	- 300	LS	A-B	342
Poly(1-(N-carbethoxy-phenyl)-methacrylamide)	acetone	unc.	0.00115	1.35	4	--	20	- 74	LS		369
	dimethylformamide	unc.	This relation not followed		5	--	48	- 140	LS		369
	ethyl acetate	unc.	0.00446	1.25	5	--	26	- 11	LS		369
Poly(4-chlorophenyl methacrylate)	benzene		9.2	0.66	8	--	10	- 810	LS	A	343
	carbon tetrachloride		20.0	0.58	8	--	10	- 810	LS	A	343
	dioxane		6.1	0.70	8	--	10	- 610	LS	A	343
Poly(cyclohexyl methacrylate)	benzene	30	8.4	0.69	5	--	80	- 200	LS		344
	butanol	θ 23	33.7	0.50	6	--	57	- 445	LS	B	345
	butanone	25	5.79	0.68	6	--	57	- 560	LS	B	346
		30	7.0	0.66	5	--	80	- 200	LS		344
Poly(dodecyl methacrylate)	butyl acetate	23	8.64	0.64	8	--	26	- 360	LS	A	158
	isopropyl acetate	θ 19	32.2	0.50	7	--	26	- 360	LS	A	158
	pentanol	θ 29.5	34.8	0.60	7	--	27	- 240	LS	A	159
Poly(2-ethylbutyl methacrylate)	butanone	25	2.21	0.77	8	--	46	- 332	LS	A	160
	2-propanol	θ 27.4	33.7	0.50	8	--	48	- 332	LS	A	160
Poly(ethyl methacrylate)	butanone	23	2.83	0.79	10	--	20	- 263	LS	A	
	ethyl acetate	35	8.6	0.71	--	11	65	- 1200	LS	C	
	2-propanol	θ 36.9	47.5	0.50	4	--	22	- 130	LS	B	
	butanone/2-propanol (1/7 vol)	θ 23	47.3	0.50	10	--	20	- 263	LS		
	ethyl acetate/ethanol (2/9 vol)	35	47.6	0.53	6	--	78	- 500	LS		
	(1/6 vol)	θ 35	56.4	0.50	6	--	60	- 420	LS		

Polymer	Solvent	Temp. [°C]	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
Poly(hexadecyl methacrylate)	benzene	21	5.9	0.71	3	--	130 - 440	SD	B	163
	carbon tetrachloride	21	2.37	0.78	5	--	130 - 440	SD	B	163
	heptane	21	3.92	0.75	5	--	130 - 440	SD	B	163
		25	33.1	0.56	9	--	20 - 110	LS		164
Poly(heryl methacrylate)	butanone	23	2.12	0.78	8	--	6 - 41	LS	A	165
	2-propanol	θ 32.6	43.0	0.50	8	--	6 - 41	LS	A	165
Poly(isobutyl methacrylate)	acetone	25	0.199	0.94	6	--	300 - 1100	LS	C	166
	butanone	20	5.56	0.73	6	--	300 - 1100	LS	C	166
		25	8.61	0.70	7	--	300 - 1100	LS	C	166
		30	7.47	0.71	6	--	300 - 1100	LS	C	166
		44	2.18	0.79	6	--	300 - 1100	LS	C	166
Poly(methacrolein)	dimethylformamide	20	2.8	0.87	--	7	0.5 - 2	OS,CR	I	204
Poly(methacrylic acid)	methanol	26	242	0.61	8	--	4 - 20	OS	B	147
	aqueous HCl (0.002M)	30	66	0.50	7	--	10 - 90	LV	C	148
	aqueous $NaNO_3$ (2M)	25	44.9	0.65	6	--	8 - 70	OS	B	149
Poly(methacrylonitrile)	acetone	20	95.5	0.56	--	4	35 - 100	OS	C	202
	dimethylformamide	29.2	306	0.503	--	16	0.6 - 8	LV	C,H	203
Poly(methyl butacrylate)	butanol	θ 13	57.0	0.60	4	--	6 - 60	LS	A	168
	butanone	30	5.43	0.73	10	--	7 - 430	LS	A	168
Poly(methyl ethacrylate)	benzene	30	2.35	0.82	8	--	16 - 110	LS	A	168
	butanone	30	4.89	0.75	10	--	4 - 200	LS	A	168
	2,6-dimethyl-4-heptanone	θ 11.4	67.6	0.50	10	--	4 - 200	LS	A	168
Poly(methyl methacrylate) atactic	acetone	20	5.5	0.73	7	--	7 - 700	SD	A-B,R	169
		20	3.90	0.76	7	--	7 - 700	SD	A-B	169
		25	7.6	0.70	9	--	8 - 137	LS	B	170
		25	6.76	0.71	10	--	3 - 700	SD	A-B	171
		25	7.6	0.70	14	--	2 - 740	LS,SD	A-B	172
		25	5.3	0.73	7	--	2 - 780	LS	A-B,R	173
		25	9.6	0.69	4	--	180 - 350	LS	A-B	174
		25	7.5	0.70	4	6	3 - 98	LS	B-C	175
		25	2.45	0.80	9	--	8 - 210	OS	B-C	176
		25	6.59	0.71	6	--	5 - 41	OS	B	177
		30	7.7	0.70	8	--	6 - 263	LS	A-B	178
		39	6.40	0.72	6	--	5 - 41	OS	B	177
		46	8.18	0.72	6	--	5 - 41	OS	B	177
	acetonitrile	30	39.3	0.50	6	--	10 - 86	LV	A-B	178
		θ 45	48	0.50	6	--	10 - 260	LV	A-B,R	179
		50	29	0.54	6	--	10 - 260	LV	A-B	180
		65	9.8	0.64	6	--	10 - 260	LV	A-B	180
	benzene	20	8.30	0.73	7	--	7 - 700	SD	A-B	169
		20	15.1	0.70	7	--	8 - 90	SD		181
		25	7.24	0.76	10	--	6 - 100	OS	B	182
		25	5.5	0.76	11	--	2 - 740	LS	A-B,R	173
		25	3.80	0.79	6	--	24 - 450	LS		183
		25	83	0.52	7	--	0.05 - 1	EB	A,L	184
		30	5.2	0.78	9	--	6 - 250	LS	A-B,R	178
		30	6.27	0.76	5	--	4 - 73	OS	A	185
		30	104	0.60	9	--	0.02 - 2	OS	A,L	186
		30	195	0.41	5	--	0.9 - 2	LS	A-B,L	178
		39	6.74	0.75	6	--	5 - 41	OS	B	177
		53	6.52	0.76	6	--	5 - 41	OS	B	177
	butanone	25	6.8	0.72	9	--	8 - 137	LS	B,R	170
		25	7.1	0.72	7	--	41 - 330	LS	A-B	174
		25	6.8	0.72	4	6	3 - 98	LS	B-C	175
		25	9.39	0.68	15	--	16 - 910	LS	A-B	186
	butyl chloride	θ 35.4	50.5	0.50	4	--	13 - 68	SA	A-B	187
	chloroform	20	9.6	0.78	18	--	1.4 - 60	OS		188

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Polymer	Solvent		Temp. [°C]	$K \times 10^5$ [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
Poly(methyl methacrylate) (Cont'd.)	chloroform (Cont'd.)		20	4.88	0.82	8	--	6 - 100	OS	B	182
atactic			20	4.85	0.80	9	--	8 - 200	SD	A-B,R	169
			20	0.0	0.79	12	--	3 - 780	LS	A-B	173,189
			25	4.8	0.80	9	--	8 - 137	LS	B	170
			25	3.4	0.83	6	--	40 - 330	LS	A-B	174
			25	5.81	0.79	6	--	5 - 41	OS	B	177
(living type)			30	4.3	0.80	--	8	13 - 263	LS	A-B	178
			39	5.02	0.80	6	--	5 - 41	OS	B	177
			53	9.90	0.79	6	--	5 - 41	OS	B	177
			unc.	5.1	0.79	13	--	7 - 400	LS	B	190
	p-cymene	θ	159.7	57.5	0.50	4	--	6.6 - 171	LV	A-B	191
	1,2-dichloroethane		25	17.0	0.68	4	6	3 - 98	LS	B-C	175
			30	5.3	0.77	--	7	6 - 263	LS	A-B,R	178
	ethyl acetate		20	21.1	0.64	8	34	6 - 110	SD		192
	3-heptanone	θ	33.7	69.1	0.50	4	--	6.6 - 171	LV	A-B	191
	4-heptanone	θ	33.8	48	0.50	5	--	1 - 172	LS	A-B,R	179
	methyl isobutyrate		30	9.9	0.67	6	--	19 - 260	LV	A-B	178
	methyl methacrylate		30	6.75	0.72	3	--	13 - 170	LV	A-B	178
	nitroethane		25	5.70	0.74	2	6	10 - 200	LS	C	199
	3-octane	θ	72	50	0.50	3	--	13 - 200	LV	A-B	178
	propanol	θ	84.4	67.9	0.50	4	--	6.6 - 171	LV	A-B	191
	tetrachloroethane		25	12.8	0.73	6	--	5 - 41	OS	B	177
			53	12.2	0.73	6	--	5 - 41	OS	B	177
	2,2,3,3-tetrafluoro-propanol		25	7.2	0.79	7	--	7 - 95	LV	A	194
	toluene		25	7.1	0.73	7	--	4 - 330	LS	A-B	174
			25	8.12	0.71	6	--	5 - 41	OS	B	177
			25	78	0.50	10	--	0.2 - 7	OS	A,L	195
			30	7.0	0.71	6	--	19 - 263	LV	A-B	178
			39	7.24	0.72	6	--	5 - 41	OS	B	177
			53	6.63	0.73	6	--	5 - 41	OS	B	177
	butanone/2-propanol (55/45 vol)		23	47.0	0.55	6	--	40 - 300	LS	A-B	174
	(50/50 vol)	θ	25	59.2	0.50	7	--	30 - 280	LS	A-B	186
		θ	25	42.8	0.50	5	--	77 - 490	LS	A-B	180
	methanol/toluene (9/5 vol)	θ	26.2	55.9	0.60	3	--	60 - 300	LS	A-B	156
isotactic	acetone		30	23.0	0.63	7	--	5 - 128	LS	A-B	199
	acetonitrile		20	130	0.648	5	--	3 - 19	LV	A	198
		θ	27.6	75.5	0.500	5	--	3 - 19	LV	A	198
			85	40	0.646	5	--	3 - 19	LV	A	198
			50	26.2	0.602	5	--	3 - 19	LV	A	198
	benzene		30	6.2	0.76	5	--	6 - 128	LS	A-B	199
	p-cymene	θ	162.1	56.6	0.50	4	--	7 - 131	LV	A-B	191
	3-heptanone	θ	40.0	87.0	0.50	4	--	7 - 131	LV	A-B	191
	propanol	θ	75.9	76.1	0.50	4	--	7 - 131	LV	A-B	191
	2,2,3,3-tetrafluoro-propanol		26	7.05	0.78	11	--	2 - 106	LV	B	194
	butanone/2-propanol (1/1 vol)	θ	30.3	90.0	0.50	4	--	7 - 131	LV	A-B	191
Poly(octadecyl methacrylate)	tetrahydrofuran		30	2.5	0.75	--	4	20 - 170	LS	C,H	200
Poly(octyl methacrylate)	butanol	θ	16.8	26.6	0.50	10	--	33 - 1250	LS	B	201
	butanone		23	4.47	0.69	10	--	33 - 1250	LS	B	201
Poly(N-phenyl methacrylamide)	acetone		20	28.2	0.75	8	--	10 - 320	LS		370

VISCOSITY-MOLECULAR WEIGHT RELATIONSHIPS

Polymer	Solvent	Temp. [°C]	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
1.5 POLY(VINYL ETHERS)										
Poly[(hexadecyloxy) ethylene]	heptane	21	70.8	0.50	6	--	0.5 - 3	SD	B,L	205
Poly(methoxyethylene)	benzene	30	76	0.60	13	--	1 - 45	LS	B	206
	butanone	30	137	0.36	13	--	1 - 45	LS	B	206
Poly[(octadecyloxy) ethylene]	benzene	25	170	0.47	--	7	0.1 - 1.6	LS	D,H	200
	tetrahydrofuran	30	224	0.35	--	7	9.4 - 11	LS	D,H	200
Poly(vinyl methyl ether), see Poly(methoxyethylene)										
1.6 POLY(VINYL ALCOHOL), POLY(VINYL HALIDES)										
Poly(chlorotrifluoro-ethylene)	2,5-dichlorobenzotri-fluoride	130	6.15	0.74	7	--	7 - 51	OS	B	234
Poly(vinyl alcohol)	water	25	20	0.76	6	--	0.6 - 2.1	OS	B	208
		25	300	0.60	4	--	0.9 - 17	SD		209
		25	140	0.60	3	--	1 - 7	SD	B	210
		30	66.6	0.64	8	--	0.6 - 16	OS	B	212
		30	42.8	0.64	--	14	1 - 80	LS	C	213
		30	45.3	0.64	--	--	1 - 60	LS	A,R	213
		60	94	0.56	--	5	10 - 46	LS	B	214
	phenol/water (85/15 vol)	30	24.6	0.80	--	21	3 - 12	LV	B	215
Poly(vinyl bromide)	cyclohexanone	25	32.8	0.66	7	--	2 - 10	LS	B	217
	tetrahydrofuran	25	15.9	0.64	7	--	2 - 10	LS	B	217
	methanol/tetrahydro-furan (17/83 vol)	20	38.8	0.60	7	--	2 - 10	LS	B	218
Poly(vinyl chloride)	benzyl alcohol	@ 155.4	156	0.50	9	--	4 - 35	LS	B	219
	chlorobenzene	20	71.2	0.69	7	--	3 - 19	SA	B	220
	cyclohexanone	20	11.6	0.85	--	6	2 - 10	OS	C	221
		20	13.7	1.0	7	5	7 - 13	OS	C,D	222
		20	112.5	0.63	5	3	9 - 15	OS	D H	222
		25	12.3	0.83	11	--	2 - 14	OS		223
		25	24	0.77	13	--	3 - 14	OS		224
		25	204	0.56	7	--	2 - 15	OS	C	225
		25	174	0.55	6	--	6 - 32	LS	C	226
		25	8.5	0.76	5	--	4 - 20	LS	B	227
		25	13.8	0.78	28	--	1 - 12	LS	A,B,R	228
		30	16.2	0.77	6	--	3 - 19	SA	B	220
	tetrahydrofuran	20	3.63	0.92	20	--	2 - 17	OS	B	229
		25	15.0	0.77	22	--	1 - 12	LS	A,B	228
		25	16.3	0.766	23	--	2 - 30	LS	A,B,R	230
		25	49.8	0.69	5	--	4 - 40	LS	A-B	231
		30	63.8	0.65	9	--	9 - 32	LS		232
		30	83.3	0.83	7	-	3 - 19	SA	B	220
		30	219	0.64	10	--	5 - 30	LS		233
Poly(vinyl fluoride)	dimethylformamide	90	6.42	0.80	--	9	14 - 66	SV	D	235
1.7 POLY(VINYL ESTERS)										
Poly(allyl acetate)	benzene	27	80	0.52	8	--	0.1 - 0.3	CR		216
Poly(vinyl acetate)	acetone	6	$[\eta]=0.104M^{0.50}+0.00725M^{0.90}$		21	--	0.3 - 130	LS	A	236
		18	24.5	0.87	6	--	4 - 34	OS	B	237
		20	15.8	0.69	6	--	10 - 72	LS		238
		25	21.4	0.68	6	--	4 - 34	OS	B	237
		25	18.8	0.69	7	7	7	LS		239
		25	14.6	0.72	--	6	0.7 - 1.3	EG	C,L	240
		25	10.8	0.72	10	--	0.9 - 2.5	EG	B,L	240
		30	17.6	0.68	16	--	2 - 163	OS	A-B	241
		30	8.0	0.74	8	--	8 - 66	LS	A-B	242
		30	17.4	0.70	7	--	7 - 68	OS		243

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Polymer	Solvent	Temp. [°C]	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
Poly(vinyl acetate) (Cont'd.)	acetone	30	10.2	0.72	--	8	3 - 126	LS	C	244
	(Cont'd.)	30	10.1	0.73	11	--	6 - 150	LS	A	236
		30	$[\eta] = 0.097M^{0.50} = 0.00723M^{0.90}$		22	--	0.3 - 150	LS	A	236
		46	13.8	0.71	6	--	4 - 34	OS	A	236
	acetonitrile	25	10.2	0.71	--	--	24 - 215	LS	B	246
		30	41.5	0.62	4	--	27 - 153	LS	A-B	247
	benzene	30	22	0.65	6	--	34 - 102	LS	A-B	248
		30	56.3	0.62	24	--	3 - 86	OS	B	249
		30	58.3	0.62	12	--	7 - 64	LS	B	250
		35	21.6	0.675	14	--	5 - 40	LS	A-B	251
	butanone	25	13.4	0.71	0	--	25 - 246	LS	A	252
		25	42	0.62	15	--	2 - 120	SD,LS	A,B	253
		30	10.7	0.71	--	13	3 - 120	LS	C	244
	chlorobenzene	25	110	0.50	9	--	0.15 - 7	OS	A	195
		25	94.4	0.56	6	--	4 - 34	OS	A	236
		53	53.7	0.60	6	--	4 - 34	OS	A	236
		67	28.9	0.65	6	--	4 - 34	OS	A	236
	chloroform	20	15.6	0.74	?	?	7 - 68	OS		243
		25	20.3	0.72	5	--	4 - 34	OS	A	236
		53	14.7	0.74	6	--	4 - 34	OS	A	236
	dioxane	25	11.4	0.74	6	--	4 - 34	OS	B	237
		58.00	10.2	0.75	5	--	4 - 34	OS	B	237
	ethanol	θ 56.9	90	0.50	5	--	4 - 150	OS,LS	A	236
	ethyl formate	30	32	0.65	4	--	16 - 154	LS	A-B	247
	3-heptanone	θ 26.8	82.0	0.50	5	--	4 - 150	OS,LS	A	236
		θ 29	92.9	0.50	18	--	5 - 63	LS	A-B	255
	methanol	θ 6	101	0.50		--	0.9 - 150	OS,LS,VOS		236,245
		25	38.0	0.59	6	--	4 - 22	OS	B	237
		30	31.4	0.60	--	18	3 - 120	LS	C	244
		53	36.6	0.59	8	--	4 - 22	OS	B	237
	6-methyl-3-heptanone	θ 66	82.0	0.50	9	--	14 - 63	LS	A-B	255
		θ 66	78.0	0.50	3	--	9 - 150	OS,LS	A	236
	4-methyl-2-pentanone	30	44.9	0.60	5	--	12 - 69	LS		247
	toluene	25	108	0.53	4	--	4 - 15	OS	B	237
		67	156	0.49	4	--	4 - 15	OS	B	237
	1,2,4-trichlorobenzene	35	33.0	0.622			5 - 40	LS		251
	heptane/3-methyl-2-butanone (27.3/72.7 vol)	25	92	0.50	6	--	25 - 287	LS	C	244
Poly(vinyl benzoate)	xylene	θ 32.5	62.0	0.50	5	--	10 - 24	OS	B	236
Poly(vinyl butyrate)	benzene	30	11.15	0.735	--	4	3 - 15	OS	C	256
Poly(vinyl caproate)	benzene	30	15.47	0.689	--	4	3 - 126	OS	C	256
Poly(vinyl 4-chlorobenzoate)	water	30	64.0	0.64	7	--	6 - 33	LV	B	236
	butanol/butanone (47/53 vol)	θ 60	73	0.50	7	--	6 - 35	LV	B	236
Poly(vinyl formate)	acetone	30	29.3	0.63	--	9	3 - 41	LV	C	257
	acetonitrile	30	14.1	0.717	--	9	3 - 41	LV	C	257
	dioxane	30	20.7	0.68	--	8	3 - 41	LV	C	257
	methyl acetate	30	37.6	0.61	--	7	3 - 24	LV	C	267
	methyl formate	30	14.1	0.722	--	7	3 - 24	LV	C	267
Poly(vinyl isobutyrate)	benzene	30	11.05	0.711	--	4	5 - 20	OS	C	256
Poly(vinyl isocaproate)	benzene	30	31.0	0.575	--	4	3 - 17	OS	C	256
Poly(vinyl pivalate)	acetone	25	2.88	0.77	4	--	40 - 217	LS	C	258
	butanone/methanol (0.897g/ml)	30	53	0.50	3	--	222 - 344	LS	C	258
Poly(vinyl sulfate)	aqueous NaCl(0.5M)	20	0.55	1.06	6	--	1 - 6	LV	C	261

Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol.Wt. Range M x 10^{-4}		Method	Remarks	Ref.
1.8 POLY(STYRENE) AND DERIVATIVES											
Poly(4-bromostyrene)	benzene	θ 20	95.5	0.53	10	--	3	- 30	OS	B	347
		θ 26.3	50.0	0.50	5	--	84	- 230	LS	A,R	348
	chlorobenzene	30	7.43	0.69	5	--	59	- 400	LS	A	348
	toluene	30	18.2	0.67	5	--	63	- 400	LS	A	349
Poly(2-chlorostyrene)	toluene	30	14.3	0.65	10	--	23	- 143	LS	A	350
Poly(4-chlorostyrene)	benzene	30	30.8	0.56	--	8	10	- 200	LS	C	351
	butanone	25	29	0.59	7	--	2	- 140	LS	B,R	352
		30	9.52	0.76	6	--	17	- 270	OS	B	353
	chlorobenzene	30	2.19	0.80	6	--	17	- 270	OS	B	353
	chloroform	30	14.8	0.65	--	8	10	- 200	LS	C	351
	dioxane	30	17.6	0.62	--	8	10	- 200	LS	C	351
	toluene	20	24.1	0.606	--	7	2	- 40	LS	B	354
		25	13.2	0.645	--	7	1	- 244	LS	B	355
		30	13.0	0.64	6	--	3	- 140	LS	B,R	352
		30	11.8	0.65	7	--	21	- 140	LS	A	349
		30	5.91	0.71	7	--	17	- 270	OS	B	353
Poly(4-cyclohexylstyrene)	heptane	20	32.5	0.54	6	--	4	- 30	OS	A-B	266
	toluene	20	10.6	0.69	7	--	2	- 30	OS	A-B	266
Poly(2,5-dichlorostyrene)	toluene	21	12.6	0.69	9	--	7	- 66	LS		356
	ethanol/ethyl acetate (1/15 wt)	θ 30.5	35.5	0.50	8	--	30	- 130	LS		357
Poly(3,4-dichlorostyrene)	chlorobenzene	30	4.29	0.72	7	--	8	- 61	OS	A	358
	o-dichlorobenzene	30	4.11	0.73	7	--	8	- 51	OS	A	358
	butanol/butyl acetate (1/13 wt)	θ 32.9		0.50	8	--	40	- 540	LS		359
Poly(2,4-dimethylstyrene)	toluene	30	9.52	0.70	--	9	5	- 120	LS	C	383
Poly(4-iodostyrene)	dioxane	20	33	0.51	10	6	10	- 118	LV	B-C	360
Poly(p-isopropylstyrene)	toluene	25	12.3	0.69	--	5	14	- 75	LS	B,C	268
Poly(o-methoxystyrene)	butanone	30	18.6	0.59	5	--	13	- 25	LS	A-B	362
	toluene	30	6.40	0.71	5	--	13	- 35	LS	A-B	362
	methanol/toluene (25/75 vol)	θ 30	57.5	0.50	4	--	15	- 30	LS	A-B	362
Poly(p-methoxystyrene)	butanone	30	3.75	0.73	5	--	13	- 75	LS	A-B	362
		35	8.6	0.68	6	--	1	- 100	LS	B	352
	chlorocyclohexane	25	17.7	0.63	16	--	22	- 220	LS	A	363
	pentyl acetate	25	55	0.52	16	--	22	- 220	LS	A	363
	toluene	25	10.5	0.70	16	--	22	- 220	LS	A	363
		30	5.28	0.73	5	--	13	- 75	LS	B	362
		30	18.0	0.62	6	--	1	- 100	LS	B	352
	methanol/toluene (28.1/71.9 vol)	θ 30	62.1	0.50	6	--	7	- 180	LS	B	362
Poly(α-methylstyrene)											
anionic, (ca. 50%-hetero, ca. 40%-syndio)	benzene	30	10.2	0.72	--	9	4	- 170	LS	A	319
	cyclohexane	θ 34.5	73	0.50	--	10	4	- 750	LS,OS	A	320
		θ 37	78	0.50	--	9	9	- 400	LS	A	321
		θ 38	76	0.50	--	6	2	- 66	LS	A	322
		θ 38.6	76.0	0.50	--	9	4	- 170	LS	A	323
		39	71.3	0.51	--	9	3	- 140	LS	A	324
	trans-decalin	θ 9.6	67	0.50	--	9	8	- 750	LS,OS	A	320
	toluene	25	7.06	0.744	--	9	8	- 750	LS,OS	A	320
		25	7.81	0.73	--	6	3	- 60	SD	A	325
		30	10.8	0.71	--	13	2	- 66	LS	A	322,326
cationic	benzene	30	24.9	0.647	4	--	14	- 91	OS	B	327
(10%-hetero, 90%-syndio)	cyclohexane	θ 32.5	66.0	0.50	5	--	2	- 370	LS	B	328
(15%-hetero, 80%-syndio)		θ 33.3	72.7	0.50	8	--	2	- 18	LS	B	328
	toluene	θ 30	2.2	0.80	6	--	1	- 100	LS	B	329
	benzene methanol (79.4/20.6 vol)	30	70.6	0.50	4	--	14	- 91	OS	B	327

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Polymer	Solvent	Temp. [°C]	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
Poly(m-methylstyrene)	benzene	30	7.30	0.76	9	--	8 - 116	OS	A	330
	cyclohexane	30	11.70	0.70	7	--	16 - 83	OS	A	330
	ethyl acetate	30	17.42	0.64	7	--	15 - 83	OS	A	330
Poly(p-methylstyrene)	diethyl succinate	θ 16.4	70	0.50	8	--	16 - 200	LS	A	331
	toluene	30	8.86	0.74	9	--	19 - 180	LS	A	331
Poly(methylstyrene), position of substituent, unspecified										
	cyclohexane	20	22	0.68	6	--	11 - 133	SV	A	332
Poly[(2,3,4,5,6-pentafluorostyrene)]										
	4-methyl-2-pentanone	20	4.37	0.736	--	31	10 - 260	OS	C	364
Poly(styrene)										
atactic	benzene	20	6.3	0.78	18	--	1 - 300	SD	A	270
		20	12.3	0.72	7	--	0.6 - 520	SD	A,R	271
		25	22.7	0.72	--	7	0.2 - 0.8	CR	C,L	272
		25	41.7	0.60	9	--	0.1 - 1	CR	B,L	272
		25	34.6	0.65	11	--	0.04 - 0.8	EG	A,L	273
		25	9.52	0.744	6	--	3 - 61	OS	A	274
		25	9.18	0.743	6	--	3 - 70	LS	A	275
		25	11.3	0.73	10	--	7 - 180	OS	A	276
		34	9.8	0.737	10	--	8 - 80	DV	A	277
	butanone	25	29	0.58	16	--	1 - 180	LS	A,R	278
		25	30.5	0.60	5	--	7 - 150	OS	A	278
		25	19.5	0.635	7	--	12 - 280	LS	A	279
		30	23	0.62	7	--	40 - 370	LS	B	280
		34	28.9	0.60	10	--	8 - 80	DV	A	281,282
	butyl chloride	40.8	16.1	0.659	5	--	29 - 106	LS	B	283
	chlorobenzene	25.7	7.4	0.749	4	--	62 - 424	LS	B	283
	chloroform	25	7.16	0.76	8	--	12 - 280	LS	A	279
		25	11.2	0.73	5	--	7 - 150	OS	A	278
		30	4.9	0.794	4	--	19 - 373	OS	B	284
	cyclohexane	28	108.0	0.479	7	--	0.6 - 69	OS	A	285
		θ 34	82	0.50	15	--	1 - 70	LV	A	274
		θ 34	90.2	0.503	9	--	0.6 - 69	OS	A	285
		θ 34.5	84.6	0.50	6	--	14 - 200	LS	A,R	286
		θ 35	80	0.50	3	--	8 - 42	LS	A	287
		θ 35	70	0.50	8	--	9 - 200	SD	B	288
		θ 35	76	0.50	10	--	4 - 137	LS	B	283
		40	41.6	0.554	10	--	4 - 137	LS	B	283
		45	34.7	0.575	10	--	4 - 137	LS	B	283
		50	26.9	0.599	10	--	4 - 137	LS	B	283
		50	36.4	0.584	7	--	4 - 52	LS	A	289
	decalin (100%-trans)	20	149	0.44	7	--	14 - 200	LS	A	290
		23	98	0.48	7	--	14 - 200	LS	A	290
		θ 23.8	--	0.50	--	--	--	LS	A	290
		25	67	0.52	7	--	14 - 200	LS	A	290
		30	61	0.53	6	--	14 - 200	LS	A	290
		60	22	0.63	4	--	14 - 200	LS	A	290
	decalin(73%-trans)	θ 18	77	0.50	4	--	14 - 140	LS	A	290
		30	36	0.58	4	--	14 - 140	LS	A	290
		40	27	0.58	4	--	14 - 140	LS	A	290
		60	22	0.64	4	--	14 - 140	LS	A	290
		100	16.7	0.67	6	--	14 - 200	LS	A	290
	dichloroethane	25	21.0	0.66	7	--	1 - 180	LS	A	278
		35	14.3	0.69	11	--	10 - 500	LS	A	689
	diethyl malonate	θ 34.2	71.8	0.50	3	--	30 - 400	LV	B	291
	diethyl oxalate	θ 55.8	72.0	0.50	2	--	39 - 400	LV	B	291
	dioxane	34	15.0	0.694	10	--	8 - 80	DV	A	282
	ethylbenzene	25	17.8	0.68	5	--	7 - 150	OS	A	
	ethylcyclohexane	θ 70	75	0.50	2	--	36 - 127	LV	B	
	methylcyclohexane	θ 70	76	0.50	)	)	)	)		
		θ 70.5	69.6	0.50	2	--	39 - 400	LV	B	
	toluene	20	4.16	0.788	10	--	4 - 127	LS		

Polymer	Solvent	Temp. [°C]	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
Poly(styrene) (Cont' d.)										
atactic	toluene (Cont' d.)	25	7.5	0.75	8	--	12 - 280	LS	A	279
		25	8.48	0.748	7	--	4 - 52	LS	A	289
		25	10.5	0.73	6	--	16 - 100	LS	A,R	294
		25	17	0.69	9	--	1 - 160	LS	A	278
		25	7.64	0.780	?	?	5 - 80	OS		295
		25	13.4	0.71	5	--	7 - 150	OS	A	276
		25	44	0.65	--	9	0.5 - 4.5	OS		296
		25	(a increases with M)		10	--	0.08 - 3.7	CR	L	297
		25	100	0.50	8	--	0.06 - 0.5	CR	A,R,L	298
		30	9.2	0.72	9	--	4 - 146	LS	A	299
		30	12.0	0.71	8	--	40 - 370	LS	B	280
		30	11.0	0.725	7	--	8 - 85	OS	A-B	300
		24	9.7	0.739	10	--	8 - 80	DV	A	282
	trichloro-benzene	135	1.75	0.67						697
	benzene methanol (74/26 vol)	θ 34	89	0.50	10	--	8 - 80	DV	A	277
	butanone/methanol (97.5/2.5 vol)	25	22.4	0.62	8	--	12 - 280	LS	A	279
	(95.0/5.0 vol)	25	26.3	0.60	8	--	12 - 280	LS	A	279
	(92.5/7.5 vol)	25	35.7	0.57	8	--	12 - 280	LS	A	279
	(89/11 vol)	θ 25	72	0.50	8	--	12 - 280	LS	A	279
	butanone/2-propanol (6/1 vol)	θ 23	73	0.50	9	--	4 - 146	LS	A	299
	(82.6/17.4 vol)	θ 34	71.8	0.50	10	--	8 - 80	DV	A	282
	chloroform/methanol (90/10 vol)	25	7.7	0.75	8	--	12 - 280	LS	A	279,278
	(80/20 vol)	25	12	0.68	8	--	12 - 280	LS	A	279,278
	(75/25 vol)	25	46	0.54	8	--	12 - 280	LS	A	279,278
	(74.7/24.3 vol)	θ 25	73	0.50	8	--	12 - 280	LS	A	279,278
	dioxane/methanol (68.1/34.9 vol)	θ 34	72.6	0.60	10	--	8 - 80	DV	A	282
	toluene/methanol (90/10 vol)	25	10.4	0.715	8	--	12 - 280	LS	A	279
	(80/20 vol)	25	26	0.612	8	--	12 - 280	LS	A	279
	(76.9/23.1 vol)	25	92	0.50	12	--	0.07 - 3.6	DV	A,L	296,297
	(75.2/24.8 vol)	θ 34	88	0.50	10	--	8 - 80	DV	A	282
atactic, anionic	benzene	25	100	0.50	--	7	0.04 - 1	VOS,EB	A,L	301
		30	8.5	0.75	--	12	2.5 - 150	VOS	A	301
		30	11.5	0.73	--	5	25 - 300	LS	A	302
		30	9.50	0.74	--	6	31 - 500	LS	A	649
	cyclohexane	θ 34	74.6	0.50	--	?	?	LS	B	304
		θ 34.5	85	0.60	--	12	0.04 - 150	LS	A,R	301,303
		θ 34.6	88	0.50	--	9	31 - 970	LS	A	649
		θ 34.6	91	0.50	--	4	25 - 300	LS	A	302
		θ 35	86	0.50	--	7	2 - 50	LS	A	305
	cyclohexene	25	16.3	0.68	--	3	20 - 107	LS	A	306
	decalin (68%-cis)	θ 12.2	80	0.50	--	6	2 - 50	LS	A	302
	decalin(99%-trans)	θ 20.4	81	0.50	--	8	31 - 760	LS	A	649
	dichloroethane	30	8.38	0.74	--	8	25 - 300	LS	A	302
	dioctyl phthalate	θ 22.0	80	0.50	--	4	40 - 160	LS	A	303
	toluene	20	11.2	0.72	--	6	3 - 24	SD		307
		25	9.77	0.73	--	12	1 - 104	SD	A,R	308
		25	34.5	0.62	--	25	0.4 - 230	SD	B	309
		30	8.81	0.75	--	6	25 - 300	LS	A	302
		30.3	10.4	0.73	--	16	2.6 - 60	OS,LS	A	310
isotactic	benzene	30	9.3	0.77	6	--	4 - 76	OS		311
		30	10.6	0.735	7	--	6 - 37	OS	A-B,R	312
	chloroform	30	25.9	0.734	3	--	9 - 92	OS	C-D	284
	o-dichlorobenzene	25	17.9	0.677	5	--	2 - 100	LV	C	313
	toluene	30	11.0	0.725	7	--	3 - 37	OS	A-B	312
		30	8.3	0.72	6	--	15 - 71	LS	A-B,R	314

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Polymer	Solvent	Temp. [°C]	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
Poly(styrene) (Cont'd.)										
branched, random type	butanone	25 (a decreases with M)			5	--	30 - 200	LS	B-C	315
	cyclohexane	θ 25 (a decreases with M)			9	--	8 - 300	LS	A	316
	toluene	30 (a decreases with M)			9	--	8 - 300	LS	A	316
star type, anionic	cyclohexane	θ 34 g' =0.94 (3 branches) *								304
		g' =0.82 (4 branches) *								304
	decalin	15 g' =0.48 (9 branches) *								318
	toluene	25 g' =0.90 (3 branches) *								304
		34 g' =0.84 (4 branches) *								304
Poly(styrenesulfonic acid)	aqueous HCl (0.52M)	25	(0.344)	(1.0)	3	--	18 - 48	LV		365
	aqueous NaCl (0.52M)	25	(0.312)	(1.0)	3	--	18 - 46	LV		365
--, sodium salt	aqueous NaCl (4.17M)	θ 25	20.4	0.50	4	--	49 - 228	LS	B	366
	(0.5M)	25	18.6	0.64	6	--	39 - 234	LS	B,R	366
	(0.1M)	25	17.8	0.68	6	--	39 - 234	LS	B	366
	(0.05M)	25	13.9	0.72	6	--	32 - 224	LS	B	366
	(0.02M)	25	10.1	0.78	6	--	39 - 234	LS	B	366
	(0.01M)	25	8.8	0.89	5	--	29 - 234	LS	B	366
	(0.005M)	25	2.3	0.93	5	--	49 - 234	LS	B	366
	aqueous KCl (3.1M)	25	20.4	0.50	4	--	49 - 234	LS	B	366

1.9 OTHERS

Poly[(biphenyl-4-yl)-ethylene]										
	benzene	20	21.4	0.819	5	--	7 - 170	LS	B	264
		30	29.6	0.59	6	--	1 - 110	LV	B	264
		75	27.7	0.689	5	--	7 - 170	LS	B	264
Poly(carbanilinoxyethylene). (Poly(vinyl carbanilate))										
	dioxane	20	13.7	0.68	11	--	6 - 200	LS	A	335
	dioxane/methanol (28/72 vol)	θ 20	64.5	0.31	5	--	6 - 200	LS	A	335
Poly(diphenylmethylene)	benzene		218	0.528	?		1 - 90	?		267
Poly(1-methoxycarbonyl-1-phenylethylene)										
	benzene	30	35.6	0.569	8	--	6 - 40	LS	A	361
	chloroform	30	12.7	0.661	8	--	6 - 40	LS	A	361
	ethylbenzene	θ 15	51.4	0.507	8	--	6 - 40	LS	A	361
Poly(vinylcarbazole)	benzene	25	30.5	0.58	11	--	0.7 - 45	LS	A	367
	chloroform	25	13.6	0.67	8	--	3 - 45	LS	A	367
	cyclohexanone	25	20.0	0.61	9	--	2 - 45	LS	A	367
	tetrachloroethane	25	12.9	0.68	9	--	2 - 45	LS	A	367
	tetrahydrofuran	25	14.4	0.65	10	--	1 - 45	LS	A	367
	toluene	θ 37	76.2	0.50	7	--	4 - 107	OS	A	368
Poly(5-vinyl-2-methylpyridine)										
	butanone	25	13.9	0.65	5	--	13 - 88	LS	A	375
		25	19	0.64	15	--	6 - 100	LS	A	376
	dimethylformamide	25	13.0	0.76	6	--	4 - 40	OS	A-B	377
	methanol	25	18.0	0.83	8	--	4 - 40	OS	A-B	377
		25	18.6	0.70	9	--	7 - 80	LS	A	376
		25	8.0	0.76	9	--	12 - 88	LS	A	375
Poly(1-vinylnaphthalene)	benzene	20	2.20	0.82	4	--	4 - 17	LS	B	264
		75	1.03	0.88	4	--	4 - 17	LS	B	264
Poly(2-vinylnaphthalene)	benzene	17	1.7	0.80	11	--	10 - 100	LS		268
		20	8.90	0.719	6	--	6 - 68	LS	B	264
		75	8.69	0.695	6	--	6 - 69	LS	B	264
	decalin/toluene (12/10 v/v)	θ 30.2		0.50	8	--	10 - 100	LS		269
Poly(2-vinylpyridine)	benzene	25	17.0	0.64	14	--	3 - 93	LS	B,C	371
	butanone	25	97.2	0.47	14	--	3 - 93	LS	B,C	207
	dimethylformamide	25	14.7	0.67	14	--	3 - 93	LS	B,C	371
	dioxane	25	30.9	0.68	14	--	3 - 93	LS	B,C	371
	methanol	25	11.3	0.73	14	--	3 - 93	LS	B,C	371
	pyridine	25	13.8	0.69	14	--	3 - 93	LS	B,C	207

* $g' = [\eta]$ of branched molec./$[\eta]$ of linear molec. with same mol. wt.

Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	W.P.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
Poly(2-vinylpyridine)	ethanol/water									
(Cont' d.)	(92/8 wt)	25	12.2	0.73	14	--	3 - 99	LS	B,C	371
Poly(4-vinylpyridine)	ethanol	25	(1.31)	(0.52)	--	3	1 - 4	SD	C	372
		25	25.0	0.68	8	--	10 - 185	LS	A-B	373
	water	25	22.0	0.687	8	--	10 - 185	LS	A-B	373
	butanone/2-propanol	25	38.0	0.57	7	--	7 - 224	LS	B	374
	ethanol/water (92/8 wt)	25	12.0	0.73	7	--	7 - 224	LS	B	374
Poly(vinylpyrrolidone)	chloroform	25	19.4	0.64	4	2	2 - 23	LS	B	378
	methanol	30	25	0.66	--	6	2 - 23	LS	B	378
	water	20	64	0.58	3	--	1 - 9	SD	B	379
		25	67.6	0.55	15	--	0.7 - 10	LS	B,R	378
		25	4.1	0.85	--	5	1 - 4	SD	C,D	211
		30	14	0.70	9	--	1 - 20	SD	B	381
		30	39.3	0.59	6	--	8 - 110	OS	A,R	383
	acetone/water									
	(66.8/33.2 vol) θ	25	75.0	0.50	--	3	1.2 - 108	LS	B	384
Poly(vinylsulfonic acid)	aqueous KBr (0.347M) θ	5.7	68.8	0.60	5	--	4 - 39	LS	B	259
		15	30.8	0.61	5	--	8 - 39	LS	B	259
		30	24.5	0.75	5	--	8 - 39	LS	B	259
		50	26.6	0.76	5	--	8 - 39	LS	B	259
	aqueous KCl (0.348M) θ	5.6	68.2	0.60	5	--	4 - 39	LS	B	259
		25	16.7	0.79	5	--	4 - 39	LS	B	259
	(0.650M) θ	26.0	79.5	0.60	5	--	4 - 39	LS	B	259
	(1.001M) θ	44.5	80.3	0.50	5	--	4 - 39	LS	B	259
	aqueous NaBr									
	(0.346M) θ	0.6	93.3	0.50	5	--	4 - 39	LS	B	259
		10	26.8	0.79	5	--	8 - 39	LS	B	259
		20	25.1	0.76	5	--	8 - 39	LS	B	259
		30	22.0	0.79	5	--	8 - 39	LS	B	259
	(1.008M) θ	40.1	94.6	0.50	5	--	4 - 39	LS	B	259
	aqueous NaCl									
	(1.003M) θ	32.4	96.1	0.50	5	--	4 - 39	LS	B	259
	(0.5M)	20	21.5	0.65	--	6	0.3 - 3	SD	C	200
Poly(vinyltrimethylsilane)	cyclohexane	25	8.2	0.71	5	--	59 - 219	LS	B	610

1.10 COPOLYMERS

Poly(acrylonitrile-co-butadiene), see also Poly(butadiene-co-acrylonitrile) in group 1.1										
18/82 wt, random	toluene	25	251	0.60	7	--	0.06 - 1.26	OS	A	590
26/74 wt, random	toluene	25	260	0.60	5	--	0.15 - 0.40	OS	A	590
Poly(acrylonitrile-co-glycidyl methacrylate)										
	dimethylformamide	30	175	0.65	?	?	?	?		591
Poly(acrylonitrile-co-methyl acrylate)										
	dimethylformamide	20	17.9	0.79	6	--	2 - 21	LS	B	592
Poly(acrylonitrile-co-styrene), 38.3/61.7 mol, azeotropic										
	butanone	30	36	0.62	16	--	15 - 120	LS	B	593
	tetrahydrofuran	25	21.5	0.68	4	--	10 - 78	LS	B	604
62.6/37.4 mol, random										
	butanone	30	52	0.61	11	--	19 - 66	LS	B	595
	dimethylformamide	30	12	0.71	11	--	19 - 56	LS	B	595
Poly(butadiene-co-methacrylamide), 90/10 wt, random										
	toluene	25	437	0.50	5	--	0.09 - 0.11	OS	A	590
Poly(butadiene-co-2-methyl-6-vinylpyridine)										
	toluene	25	309	0.50	5	--	0.09 - 1.04	OS	A	590
Poly(butadiene-co-styrene), see also Poly(butadiene-co-styrene) in group 1.1										
84/16 mol, random	benzene	25	39.4	0.70	4	--	2 - 51	OS	A	596
	dibutyl phthalate	56	472	0.40	6	--	2 - 51	OS	A	596
	2-pentanone θ	23.8	107	0.50	5	--	7 - 51	OS	A	596
Poly(butyl itaconate-co-dibutyl itaconate), 40/60 mol, random										
	acetone	25	573	0.32	6	--	9 - 70	LS	B	597
	methanol	25	354	0.32	7	--	11 - 110	LS	B	597

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POLY(OXIDES)

Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	No. of samples W.F.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
2. MAIN-CHAIN CARBOCYCLIC POLYMERS										
Poly(acenaphthenylene)	benzene	25	30.04	0.594	11	--	2 - 100	OS	B	262
		25	2.82	0.74	4	--	4 - 100	LS	A,B	263
	ethylene chloride	25	20.0	0.64	6	--	6 - 125	LS	A,B	263
	dioxane	25	11.5	0.61	7	--	6 - 145	LS	A,B	263
	methylene chloride	25	6.82	0.66	5	--	6 - 145	LS	A,B	263
	toluene	25	6.76	0.66	17	--	3 - 175	LS	A,B	263
3. MAIN-CHAIN HETEROATOM POLYMERS										
3.1 POLY(OXIDES)										
Poly(butene oxide), see Poly[oxy(ethylethylene)]										
Poly(ethylene oxide), see Poly(oxyethylene)										
Poly[oxy(tert-butyl-ethylene)]	benzene	25	99.7	0.680	9	--	8 - 520	LS	A-B	386
Poly(oxy-1,2-cyclohexylene)	toluene	35	3.5	0.83	22	--	2 - 50	OS	B	472
Poly(oxydecamethylene)	benzene	35	195	0.53	7	--	0.1 - 0.9	SE	B	386
	chloroform	30	172	0.56	9	--	0.05 - 0.9	SE	B	386
Poly(oxy-2,6-dimethyl-1,4-phenylene)	benzene	25	26.0	0.69	8	--	3 - 17	LS	B	473
	carbon tetrachloride	25	75.5	0.585	5	--	7 - 17	LS	B	473
	chlorobenzene	25	37.8	0.66	7	--	2 - 42	LS	B	474
		90	51.4	0.63	7	--	3 - 18	LS	B	473
	chloroform	25	48.3	0.64	8	--	2 - 42	LS	B	474
	toluene	25	28.5	0.68	15	--	2 - 42	LS	B	474
Poly(dioxolane), see Poly(oxymethyleneoxyethylene)										
Poly(oxy-2,6-diphenyl-1,4-phenylene)	chlorobenzene	25	13.9	0.68	--	10	4 - 145	LS	C	473
		90	15.6	0.67	--	10	4 - 145	LS	C	473
	toluene	25	21.4	0.635	--	10	4 - 145	LS	C	473
Poly(oxyethylene)	acetone	25	32	0.67	5	--	7 - 100	LV	A,R	387
		25	156	0.50	7	--	0.02 - 0.3	EG	A,L	388
	benzene	20	48	0.68	12	--	0.01 - 1.9	EG	A	389
		25	39.7	0.685	9	--	8 - 520	LS	A,R	385
		25	129	0.50	12	--	0.02 - 0.8	EG	A,L	388
	carbon tetrachloride	20	69	0.61	9	--	0.02 - 1.1	EG	A	389
		25	62	0.64	5	--	7 - 100	LV	A	387
	chloroform	25	206	0.50	6	--	0.02 - 0.15	EG	A,L	388
	cyclohexane	20	$[\eta]=0.5+0.035M^{0.84}$		11	--	0.006 - 1.1	EG	A	389
	diethylene glycol diethyl ether	50	140	0.51	5	--	7 - 100	LV	A	387
	dimethylformamide	25	$[\eta]=2.0+0.024M^{0.73}$		10	--	0.1 - 3	LS,SD	A	390
	dioxane	20	$[\eta]=0.75+0.035M^{0.71}$		13	--	0.006 - 1.1	EG	A	389
		25	138	0.50	7	--	0.02 - 0.15	EG	A,L	388
	methanol	20	$[\eta]=2.0+0.033M^{0.72}$		12	--	0.006 - 1.9	EG	A	389
		25	65.2	0.57	7		-	LS,SD	A	391
	4-methylpentan-2-one	50	120	0.52	5	--	7 - 100	LV	A	387
	toluene	35	14.5	0.70	--	4	0.04 - 0.4	EG	C,L	392
	water	20	$[\eta]=2.0+0.016M^{0.76}$		11	--	0.006 - 1.1	EG	A	391
		25	100	0.50	5	--	0.019 - 0.1	EG	A,L	393
		30	12.5	0.78	--	6	2 - 500	LS,SD	C	394
		35	6.4	0.82	--	5	3 - 700	LV	C,R	395
		35	16.6	0.82	--	4	0.04 - 0.4	EG	C,L	392
		45	6.9	0.81	--	5	8 - 700	LV	C	395

VISCOSITY-MOLECULAR WEIGHT RELATIONSHIPS

Polymer	Solvent	Temp. [°C]	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
Poly(oxycthylene) (Cont'd.)										
	aqueous K_2SO_4 (0.45M)	θ 35	130	0.50	--	6	3 - 700	LV	C	395
		35	280	0.45	--	5	7 - 100	LV	A	387
	aqueous $MgSO_4$ (0.39M)	θ 45	100	0.50	--	6	3 - 700	LV	C	395
Poly[oxy(ethylethylene)]	benzene	25	15.9	0.75	10	--	5 - 120	LS	B-C	396
		30	8.39	0.84	9	--	20 - 210	LS	B	397
	butanol	25	19.6	0.69	10	--	5 - 120	LS	B-C	396
	butanone	30	4.08	0.79	9	--	20 - 210	LS	B	397
	hexane	25	14.3	0.73	10	--	5 - 120	LS	B-C	396
	3-propanol	θ 30	86.6	0.50	9	--	20 - 210	LS	B	397
		θ 30	111	0.50	9	--	5 - 120	LS	B-C	396
Poly(oxyhexamethylene)	benzene	25	80.9	0.82	1	9	0.01 - 1.5	SE,CR	C	398
	dioxane	25	131	0.55	1	10	0.01 - 1.5	SE,CR	C	398
Poly(oxymethylene)	dimethylformamide	130	22.4	0.71	?	--	0.15 - 1.5	EG	B	399
		140	18.1	0.73	?	--	0.15 - 1.5	EG	B	399
	hexafluoroacetone-sesquihydrate (1/1.7 mol, with triethylamine 1% vol)	25	46.0	0.74	7	--	0.15 - 1.5	EG	B	399
		25	87	0.69	--	5	2 - 15	LS	C	402
	phenol/tetrachloroethane (1/3 wt)	90	27.5	0.80	--	18	0.8 - 10	EG	C,D	400
	(1/3 vol)	90	5.22	0.93	?		?	OS		403
Poly(oxymethyleneoxyethylene)	chlorobenzene	25	200	0.50	4	14	9 - 100	LS	D	404
	p-chlorophenol	60	41.3	0.724	--	3	7 - 13	LS	C	405
	1H,1H,5H-octafluoropentanol-1	110	13.35	0.810	--	3	7 - 13	LS	C	405
Poly[oxy(phenylethylene)]	benzene	30	92.2	0.758	10	--	1.4 - 81	LS	B,C	385
	toluene	25	67.9	0.766	10	--	1.4 - 81	LS	B,C	385
Poly(oxypropylene)	acetone	25	75.5	0.66	5	--	0.1 - 0.4	LS	A	406
	benzene	20	11.1	0.79	5	--	0.07 - 0.33	SE	A	407
		25	11.2	0.77	3	--	3 - 70	LS	A-B	408
		25	14	0.8	?		?	?		409
		25	38.5	0.73	--	8	0.5 - 92	LV	C	410
isotactic		25	41.3	0.64	11	--	1 - 8	LS	A	411
		25	41.5	0.65	5	--	0.05 - 0.4	LS	A	406
	hexane	46	19.7	0.67	6	10	3.4 - 307	LS	A-B	408
	methanol	20	40.6	0.64	6	--	0.05 - 0.33	SE	A	407
		25	76.9	0.66	10	--	1 - 7	LS		411
	tetrahydrofuran	20	55.0	0.62	5	--	0.05 - 0.33	SE	A	407
	toluene	20	20.8	0.72	5	--	0.07 - 0.33	SE	A	407
		25	12.9	0.75	3	--	3 - 70	LS	A-B	408
	toluene/2,2,4-trimethylpentane (5/7 vol)	θ 39.5	107.5	0.50	7	--	1 - 7	LS	A	411
Poly(oxytetramethylene)	benzene	30	131	0.60	--	12	2.6 - 113	LS	A	412
	ethyl acetate	30	42.2	0.65	--	12	2.6 - 113	LS	A	412
	toluene	28	25.1	0.78	10	--	3 - 12	OS	A-B	413
	ethyl acetate/hexane (22.7/77.3 wt)	θ 31.8	206	0.49	--	11	2.6 - 113	LS	A	412
Poly(oxytrimethylene)	acetone	30	76.0	0.59	--	7	2.8 - 20	LS	A	414
	benzene	30	21.9	0.78	--	15	2.8 - 30	LS	A	414
	carbon tetrachloride	30	26.7	0.75	--	11	2.8 - 25	LS	A	414

Poly(propylene oxide), see Poly(oxypropylene)

Poly(tetrahydrofuran), see Poly(oxytetramethylene)

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POLY(ESTERS), POLY(CARBONATES)

Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
3,2 POLY(ESTERS), POLY(CARBONATES)										
Bisphenol A poly(carbonates), see Poly[oxycarbonyloxy-1,4-phenyleneisopropylidene-1,4-phenylene]										
Poly(ethylene terephthalate), see Poly(oxyethyleneoxyterephthaloyl)										
Poly(oxyadipoyloxydecamethylene)										
	chlorobenzene	25	11.7	0.84	--	7	0.8 - 3	LV	C	415
	diethyl succinate	79	5.8	0.86	--	12	1 - 3	LV	C	416
Poly[oxycarbonyl(bicyclo[2,2,2,]octan-2,5-dion)carbonyloxyhexamethylene]										
	chloroform	20	--	--	--	4	1.4 - 3.9	OS	C	475
Poly(oxybutynedioyloxyhexamethylene)										
	benzene	20	151	0.55	?	--	0.1 - 0.5	OS	B	416
	chloroform	20	91	0.61	?	--	0.1 - 0.5	OS	B	416
Poly[oxycarbonyloxy-1,4-phenyleneisopropylidene-1,4-phenylene]										
	butyl benzyl ether	θ 170	210	0.50	8	--	4 - 31	LS	B	476
	chloroform	20	277	0.60			1.5 - 6	LS		477
		25	12.0	0.82	8	--	1 - 7	LS	A	478
	ethylene chloride	25	20.4	0.76	8	--	1 - 7	LS	A	478
	methylene chloride	25	11.1	0.82	6	--	1 - 27	SD	B	479
		25	11.9	0.80	12	--	1 - 76	LS	B,R	476
	tetrachloroethane	25	38.9	0.70	8	--	1 - 7	LS	A	478
	tetrahydrofuran	25	13.4	0.82	8	--	1 - 7	LS	A	478
		25	38.9	0.70	8	--	1 - 7	LS	A	478
		25	39.9	0.70	--	6	1 - 27	SD	C,R	479
	cyclohexane/dioxane (36.1/63.9 wt)	25	210	0.50	4	--	30 - 75	LS	B	476
Poly(oxycarbonylpentamethylene)										
	benzene	30	9.94	0.82	9	--	1.4 - 15	SV	B	447
	dimethylformamide	30	19.1	0.73	9	--	1.4 - 15	SV	B	447
Poly(oxycarbonylpropylene)										
	chloroform	30	7.7	0.82	--	5	2 - 78	SD	C,D	660
	2,2,2-trifluoroethanol	30	25.1	0.74	--	6	2 - 101	LS	C,D	661
Poly(oxy-1,4-cyclohexyleneoxysebacoyl)										
cis	chloroform	20	27.8	0.78	--	5	2.1 - 4.6	OS	C	480
trans	chloroform	20	18.3	0.86	--	8	1.1 - 3.7	OS	C	480
Poly(oxyethyleneoxyterephthaloyl)										
	o-chlorophenol	25	17	0.83	--	7	0.8 - 2.0	EG	C	481
		25	19	0.81	6	--	1.5 - 3.8	EG	B	482
		25	30	0.77	--	34	1.1 - 2.9	EG	C	483
		25	42.5	0.69	7	--	2 - 15	SD	A	484
		25	6560	0.73	--	5	1.2 - 2.6	OS	C	485
		55	28	0.77	6	--	1.5 - 3.8	EG	B	482
	m-cresol	25	0.77	0.95	--	5	0.04 - 1.2	EG	A,L	486
	dichloroacetic acid	45	400	0.50	7	--	1.5 - 3.8	EG	B	482
	tetrachloroethane	50	13.8	0.87	--	6	0.04 - 0.2	EG	A,L	487
	trifluoroacetic acid	25	140	0.64	7	--	1.5 - 3.8	EG	B	482
		30	43.3	0.88	--	9	2.5 - 12	LS	C	488
		55	130	0.66	7	--	1.5 - 3.8	EG	B	482
		55	105	0.69	6	--	1.5 - 3.8	EG	B	482
	dichloroethane/phenol (6/4 vol)		9.2	0.8				EG		489
	phenol/tetrachloroethane (40/60 wt)	25	140	0.84	6	--	1.5 - 3.8	EG	B	482
		35	125	0.66	6	--	1.5 - 3.8	EG	B	482
	(3/5 vol)	30	22.9	0.73	--	9	2.5 - 12	LS	C	488
	(50/50 vol)	20	75.5	0.685	--	38	0.3 - 3	EG	C	490
		25	21	0.82	--	9	0.5 - 3	EG	C	491
			12.7	0.86						492
	phenol/tetrachlorophenol	25	46.8	0.68				LS		493
	phenol/trichlorophenol (10/7 vol)	29.8	28.0	0.775	--	4	0.1 - 0.4	EG	C	494
		30	690	0.47	--	8	1.1 - 4	OS	C	495

Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Ft.	W.P.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
Poly(oxyfumaroyloxyhexamethylene)										
	chloroform	20	27.1	0.80	5	--	2 - 4.3	OS	B	417
Poly[oxy(hexahydro-3,6-endomethylenephthaloyl)oxyhexamethylene]										
cis	benzene	20	4.64	0.86	13	--	2.3 - 7.6	OS	B	496
	chloroform	20	9.33	0.83	13	--	2.3 - 7.6	OS	B	496
trans	benzene	20	17.4	0.75	10	--	3.3 - 11	OS	B	496
	chloroform	20	17.9	0.77	11	--	3.3 - 16	OS	B	496
Poly[oxy(hexahydroterephthaloyl)oxyoctamethylene]										
cis	chloroform	20	22.9	0.79	6	--	3.3 - 6.6	OS	B	480
trans	chloroform	20	18.9	0.84	6	--	2.4 - 4.4	OS	B	480
Poly(oxyhexamethyleneoxy-2,9-dibutylsebacoyl)										
	benzene	20	37.4	0.74	7	--	0.9 - 2.4	OS	B	418
Poly(oxyhexamethyleneoxysebacoyl)										
	benzene	20	62.7	0.69	9	--	0.6 - 1.8	OS	B	418
	chloroform	20	72.5	0.70	9	--	2 - 10	OS	B	419
Poly(oxymaleoyloxyhexamethylene)										
	benzene	20	75.3	0.60	7	--	1.3 - 6.6	OS	B	417
	chloroform	20	36.2	0.73	7	--	1.3 - 6.6	OS	B	417
	tetrahydrofuran	20	43.7	0.66	7	--	1.3 - 6.6	OS	B	417
Poly(oxysebacoyloxyhexadecamethylene)										
	chloroform	20	74.7	0.70	4	--	2 - 10	OS	B	419
Poly(oxysuccinyloxyhexamethylene)										
	benzene	20	43.3	0.70	22	--	1.5 - 5	OS	B	417
	chloroform	20	24.4	0.79	18	--	1.5 - 5	OS	B	417
	tetrahydrofuran	20	44.3	0.69	13	--	1.5 - 5	OS	B	417
Poly[oxytetra(ethyleneoxy)carbonyl(1-methylethylene)thio(2-methylethylene)carbonyl]										
	chloroform	?	34.7	0.714	--	?	< 1.5	EG	?	421
Poly(oxyundecanoyl)	chloroform	20	21.4	0.60	7	--	3 - 49	OS	B	419
		25	30.3	0.82	--	6	0.5 - 1.3	EG	C	420

3,3 POLY(AMIDES)

Poly[(butylimino)carbonyl], (poly(butyl isocyanate))										
	benzene	20	1.10	1.11	--	7	1.8 - 21	SD	A,R	441
	tetrachloromethane	20			--	2	6.6 - 16	SD	D	442
	tetrahydrofuran	20	0.457	1.18	--	7	1.8 - 21	SD	A	441
Poly(iminoadipoyliminohexamethylene), (Nylon 66)										
	o-chlorophenol	25	168	0.62	--	2	1.4 - 5	LS,EG	C	443
	m-cresol	25	240	0.61	--	2	1.4 - 5	LS,EG	C	443
		25	$[\eta]=0.5+0.0353M^{0.792}$		13	--	0.015 - 5	LS,EG	B	444
	dichloroacetic acid	25	$[\eta]=0.5+0.352M^{0.551}$		12	--	0.015 - 5	LS,EG	B	444
	2,2,3,3-tetrafluoropropanol, CF_3COONa (0.1M)	25	114	0.66	--	2	1.4 - 5	LV	C	443
	aqueous HCOOH (90% vol)	25	35.8	0.786	3	11	0.5 - 6.5	LS,EG	C	443
		25	110	0.72	--	20	0.5 - 2.5	EG	C	446
		25	$[\eta]=2.5+0.0132M^{0.873}$		13	--	0.015 - 5	LS,EG	B	444
	aqueous HCOOH (90% vol), HCOONa (0.1M)	25	32.8	0.74	--	19	1 - 5	EG	C,R	445
		25	87.7	0.65	--	2	1.4 - 5	LS,EG	C	443
		25	$[\eta]=1.0+0.0516M^{0.687}$		6	--	0.015 - 5	LS,EG	B,R	444
	aqueous HCOOH (90% vol), KCl (2.3M)	θ 25	227	0.50	--	2	1.4 - 5	LS,EG	C	443
		θ 25	253	0.50	7	--	0.015 - 5	LS,EG	B-C	444
	aqueous H_2SO_4 (95% vol)	25	$[\eta]=2.5+0.0249M^{0.832}$		12	--	0.015 - 5	LS,EG	B	444
	aqueous H_2SO_4 (96% vol)	25	115	0.67	--	2	1.4 - 5	LV	C	443

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POLY(AMINO ACIDS)

Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	W.P.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
Poly(iminohexamethyleneiminosebacoyl), (Nylon 6 10)										
	m-cresol	25	13.5	0.96	--	5	0.8 - 2.4	SD	B	454
Poly[imino(1-oxohexamethylene)], (Nylon 6)										
	m-cresol	25	320	0.82	6	--	0.05 - 0.5	EG	B	448
	trifluoroethanol	-20	53.3	0.74	6	--	1.3 - 10	LS	B	450
		25	53.6	0.75	5	--	1.3 - 10	LS	B	450
		50	58.2	0.78	5	--	1.3 - 10	LS	B	450
	aqueous HCOOH (85%)	-10	25.8	0.82	6	--	0.7 - 12	LS	B	450
		0	24.8	0.82	6	--	0.7 - 12	LS	B	450
		10	23.4	0.82	6	--	0.7 - 12	LS	B	450
		20	75	0.70			0.45 - 1.6	EG		451
		25	22.6	0.82	11	--	0.7 - 12	LS	B,R	450
	aqueous HCOOH (65%)	25	229	0.50	5	--	0.7 - 12	LS	B	450
	aqueous H_2SO_4 (40%)	25	69.2	0.69			0.3 - 1.8	EG		452
ring oligomer	m-cresol	25	2100	0.22	--	4	0.02 - 0.06	VOS	A	449
	ethylene chlorohydrin	25	870	0.27	--	3	0.03 - 0.06	VOS	A	449
monochain, polymerized with stearic acid	conc. H_2SO_4	25	63	0.76	--	7	0.2 - 1.4	EG	B	453
dichain, polymerized with sebacic acid	conc. H_2SO_4	25	42	0.79	--	14	0.2 - 2.3	EG	B	453
tetrachain, polymerized with a tetrabasic acid	conc. H_2SO_4	25	55	0.74	--	11	0.2 - 1.9	EG	B	453
octachain, polymerized with a octabasic acid	conc. H_2SO_4	25	13.5	0.86	--	5	0.4 - 2.6	EG	B	453
Poly(iminoterephthaloylimino-1,4-phenylenefluoren-9-ylidene-1,4-phenylene)										
	dimethylformamide	25	110	0.66	7	--	1.5 - 7.8	LS	B	503
Poly(iminoterephthaloylimino-1,4-phenylene phthalidylidene-1,4-phenylene)										
	dimethylformamide	25	277	0.59	8	--	1.4 - 6.9	LS	B	503

3.4 POLY(AMINO ACIDS)

Poly(β-benzyl-L-aspartate), see Poly(iminocarbonyl-L-benzyloxycarbonylethylidene)

Poly(γ-benzyl-L-glutamate), see Poly(iminocarbonyl-L-benzyloxycarbonylpropylidene)

Poly[(benzylimino)carbonylethylene], (Poly(N-benzyl-β-alanine))										
	dichloroacetic acid	25	120	0.525	--	6	0.15 - 1.8	EG	B,L	455
Poly(iminocarbonyl-L-benzyloxycarbonylethylidene), (Poly(β-benzyl-L-aspartate))										
	m-cresol	15	--	1.15	5	--	0.8 - 24	LS	B	456
		70	--	0.74	5	--	0.8 - 24	LS	B	456
	hexamethylphosphor-amide	25	--	0.80	4	--	2 - 24	LS	B	456
	chloroform/dichloro-acetic acid (98/2 vol)	25	--	1.30	5	--	0.8 - 24	LS	B	456
Poly(iminocarbonyl-L-benzyloxycarbonylpropylidene), (Poly(γ-benzyl-L-glutamate))										
	dichloroacetic acid	25	2.78	0.87	--	6	2 - 34	LS	C	457
	dimethylformamide	25	0.00029	1.70	--	5	7 - 34	LS	C	467
D,L	dichloroacetic acid/ heptane (55/45 vol)	21	110	0.53	--	4	1.5 - 10	LS	C	458
	(90/10 vol)	21	25.4	0.68	--	4	1.5 - 10	LS	C	458
	dichloroacetic acid	25	2.85	0.85	--	6	1.5 - 10	LS	C	459
	dimethylformamide	25	37.7	0.55	--	6	1.5 - 10	LS	C	459
Poly[iminocarbonyl-L-(N-hydroxypropyl-carbamoylpropylidene)], (Poly(N^5-(3-hydroxypropyl)-L-glutamine))										
	methanol	25	--	1.6	4	--	20 - 40	LS	B	460
	water	25	--	0.6 ~ 1.0	5	--	2 - 33	LS	B	460
Poly(iminocarbonyl-L-methoxycarbonylpropylidene), (Poly(γ-methyl-L-glutamate))										
	m-cresol	25		>1			3 - 21	OS	C	462
	dichloroacetic acid	25	29	0.74	--	6	3 - 21	OS	C	463
D,L	m-cresol	25	11	0.78	--	6	3.2 - 8.2	OS	C	464
	dichloroacetic acid	25	5.9	0.85	--	6	3.2 - 8.2	OS	C	464

Polymer	Solvent	Temp. (°C)	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
Poly(iminocarbonyl-L-methoxyethylideneiminocarbonyl-L-hydroxyethylideneiminocarbonylmethylene). (Poly(Asp(OCH$_3$)-Ser(H)-Gly))										
	dichloroacetic acid	30	868	0.367	--	9	0.26 - 1.1	SA	B,C	467
Poly(iminocarbonyl-L-p-nitrobenzyloxycarbonylpropylidene). (Poly(γ-p-nitrobenzyl-L-glutamate))										
	dichloroacetic acid	25	11.5	0.72	--	10	1 - 5	LS	B	608
	dimethylformamide	25	0.0170	1.36	--	10	1 - 5	LS	B	608
Poly(iminocarbonyl-L-phenylethylidene). Poly(L-phenyl alanine))										
	chloroform	25	0.00346	1.48	--	11	2.2 - 14	LS	B	465
D,L	chloroform/dichloro-acetic acid (2/3 vol)	21	118	0.55				LS	B	466
Poly[(methylimino)carbonylmethylene]. (Poly(sarcosine))										
	water	20	56	0.88	--	5	0.7 - 1.6	EG	C	468
Poly(l-proline). see Poly[(L-1,2pyrolidindiyl)carbonyl] group 3.9.										

3.5 POLY(UREAS), POLY(URETHANES), POLY(IMINES)

Poly(iminoethylene)	water	25	$[\eta] = 2.14P^{0.36}$ P: number of N atoms		4	--	P=4-18	CR	D	470
Poly[oxytetramethyleneoxycarbonylimino-2,4-tolylene]iminocarbonyl]										
	dimethylformamide	30	54	0.74	--	5	0.35 - 1.6	LS	C	497
Poly[oxytetramethyleneoxycarbonylimino-(6-pentyloxy-1,3-phenylene)iminocarbonyl]										
	dimethylformamide	20	8.1	0.86	--	5	0.9 - 4.3	SV	C	498
Poly(oxytetramethyleneoxycarbonylimino-[6-(α-H,ω-H,ω-perfluoroalkylene)oxy-1,3-phenylene] -iminocarbonyl)										
number of F atoms										
4	acetone	20	7.1	0.81	--	5	0.5 - 4	SV	C	498
8	acetone	20	4.3	0.785	--	5	2 - 16	SV	C	498
12	acetone	20	13.5	0.67	--	5	1.7 - 28	SV	C	498
16	acetone	20	25.6	0.615	--	5	0.9 - 9	SV	C	498
Poly(ureyleneheptamethylene)										
	dichloroacetic acid	46	338	0.505	--	10	0.3 - 2.4	LS	C	471
	sulfuric acid (90%)	25	500	0.714	--	14	0.13 - 2.4	LS	C	471
		46	223	0.506	--	7	0.06 - 2.4	LS	C	471
	(99%)	25	37.5	0.757	--	5	0.4 - 2.4	LS	C	471
	(98%)	46	240	0.53	--	7	0.2 - 2.4	LS	C	471

3.6 POLY(SULFIDES)

Poly(thiopropylene)	benzene	20	3.3	0.86	7	--	3.8 - 20.4	LS	B	436

3.7 POLY(PHOSPHATES)

Poly[oxy(hydroxyphosphinylidene)]										
	aqueous NaBr									
	(0.35M)	25	6.5	0.69	--	16	1 - 125	LS	C	422
	(0.415M)	8 25	49.4	0.50	--	9	1 - 125	LS	C	422
Poly[oxy(hydroxyphosphinylidene)], sodium salt										
	aqueous NaBr									
	(0.036M)	25.5	69	0.61	--	5	0.09 - 1	EG	C	423
Poly(phosphoric acid), see Poly[oxy(hydroxyphosphinylidene)]										

3.8 POLY(SILOXANES), POLY(SILSESQUIOXANES)

Poly(dimethyl siloxane), see Poly[oxy(dimethylsilylene)]										
Poly[(1-isobutyl-3-phenylsilsesquioxane)										
	benzene	21	1.4	0.90	?	--	1.2 - 16	SD	?	619
		21	110	0.54	?	--	20 - 280	SD	?	619
	butyl acetate	24	same as above two data							619
Poly(3-methylbutenesilsesquioxane)										
	benzene	21	5.4	0.88	5	--	9 - 60	SD	B	603
		21	1.6	0.90	?	--	0.35 - 74	SD	B	619
	butyl acetate	24	5.4	0.86	13	--	9 - 60	SD	B	603

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POLY(SILOXANES)

Polymer	Solvent	Temp. [°C]	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
Poly[oxy(dimethylsilylene)]	benzene	20	12	0.68	4	--	6.5 - 12	LV	A-B	424
	bromobenzene	θ 78.7	76	0.50	3	--	8 - 106	LS	A	425
	bromocyclohexane	θ 28	78	0.50	5	--	10 - 92	SD	A	426
		θ 29.0	74	0.50	5	--	3.3 - 108	LS	A,R	425
	butanone	θ 20	81	0.50	5	--	5 - 66	OS	A	427
		30	48	0.55	8	--	5 - 66	OS	A	427
	ethyl iodide	θ 2.1	70	0.50	2	--	34 - 106	LS	A	425
	phenetole	θ 83	79	0.50	--	2	5 - 66	OS	A	427
		θ 89.5	73	0.50	4	--	4.5 - 106	LS	A,R	425
	toluene	20	20.0	0.66	--	?	0.3 - 20	OS,LS	C	428
		25	2.43	0.84	--	7	1.9 - 13	LS	C	429
		25	8.28	0.72	5	--	10 - 92	SD	A	426
		25	21.5	0.65	--	?	2 - 130	OS		430
		25	75	0.50	5	--	0.2 - 1.0	OS		56
	bromocyclohexane/phenetole (6/7 vol)	θ 36.3	75.5	0.50	4	--	4.5 - 106	LS	A	425
	chlorobenzene/dimethyl phthalate (45/6 vol)	θ 57.5	78	0.50	3	--	8 - 106	LS	A	425
	$C_8F_{18}/C_2Cl_4F_2$ (33.17/66.83 wt), low cohesive energy density mixture	θ 22.5	106	0.50	4	--	55 - 120	LS	A-B	424
		20	23.9	0.64	10	--	4 - 35	LS	A	431
star type, 3 branches	toluene	20	64.5	0.64	10	--	0.8 - 25	LS	A	431
styr type, 4 branches	toluene									
Poly[oxy(dimethylsilylene)-1,4-phenylene-dimethylsilylene]	toluene	25	11.2	0.75	6	--	7 - 40	LS	B	499
Poly[oxy(dipropylsilylene)]	2-pentanone	θ 76	87.1	0.50	4	--	2.6 - 27	OS	A	433
	toluene	θ 10	109	0.50	6	--	2.5 - 30	OS	A	433
		25	43.5	0.58	16	--	1.7 - 48	OS	A	433
Poly[oxy(methylsilylene)] Me/Si=1.5 Me/Si=1.8	chlorobenzene	θ 20	326	0.21	12	--	0.1 - 500	LS		432
	chlorobenzene/dimethylphthalate (90.7/9.3 wt)	θ 20	240	0.28	3	--	5 - 100	LS		432
Poly[oxy(methylphenylsilylene)]	cyclohexane	25	5.52	0.72	13	--	6 - 124	LS	A	434
	diisobutylamine	θ 30.4	51.5	0.50	9	--	6 - 124	LS	A	434
	toluene	25	3.90	0.78	20	--	6 - 124	LS	A	434
Poly[oxy(γ-trifluoropropylmethylsilylene)]	cyclohexyl acetate	θ 25.0	41.0	0.50	12	--	12 - 451	LS	A	435
	ethyl acetate	25	5.92	0.70	9	--	20 - 451	LS	A	435
	methyl hexanoate	θ 72.8	44.5	0.50	7	--	44 - 451	LS	A	435
Poly(phenylsilsesquioxane)	benzene	--	--	0.92	--	--	--	LS		500
		21	0.77	0.90	7	--	1.7 - 6.1	SD	B	501
		21	2.36	0.86	14	--	0.4 - 88	SD	B	502
		21	0.13	1.10	8	--	3.7 - 15	SD	B,L	501,603
		21	7.6	0.70	5	--	10 - 91	SD	B	603
	bromoform	21	0.13	1.08	8	--	3.7 - 15	SD	B	501
		21	2.38	0.85	12	--	3.6 - 88	SD	B	502
	benzene/bromoform (60/40 wt)	θ 21	2.38	0.85	5	--	14 - 71	SD	B	502
		θ 21	220	0.50	?	--	60 - 340	SD	?	619
cis-syndiotactic	1,2-dichloroethane	θ 50.5	2.12	0.87	4	--	5 - 30	OS		601

Polymer	Solvent	Temp. [°C]	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
3.9 POLY(HETEROCYCLICS)										
Poly[(1,3-dihydro-3-oxoisobenzofuran-1-ylidene)-1,4-phenyleneiminoterephthaloylimino-1,4-phenylene]										
	dimethylformamide	25	277	0.59	7	--	1.4 - 5.5	LS	B	503
Poly[(1,3-dihydro-3-oxo-2-phenylisoindole-1-ylidene)-1,4-phenyleneoxyterephthaloyloxy-1,4-phenylene]										
	tetrachloroethane	20	41.0	0.684	10	--	0.9 - 3	LS	B	514
	tetrahydrofuran	20	259	0.488	5	--	1 - 3	LS	B	514
Poly[(5,7-dihydro-1,3,5,7-tetraoxobenzo[1,2-c:4,5-c']-dipyrrole-2,6(1H,3H)diyl)-1,4-phenylene-(1,3-dihydro-3-oxoisobenzofuran-1-ylidene)-1,4-phenylene]										
	dimethylformamide	20	328	0.516	26	--	0.4 - 17	LS	B	515
Poly(1-isobutyl-2,5-oxopyrrolidin-3,4-diyl)										
	butyl acetate	21	22	0.65	13	--	19 - 340	SD	A	512
Poly[(4-phenyl-1,2,4-triazol-3,5-diyl)-1,3(or 1,4)-phenylene]										
	phenol/water (90/10 wt)	--	845	0.56	--	5	1.8 - 2.7	OS	--	516
Poly[(L-1,2-pyrrolidindiyl)carbonyl]										
	water, acetic acid	25	no simple relation		--	6	1 - 5	OS	C	507
Poly(1-p-tolyl-2,5-oxopyrrolidin-3,4-diyl)										
	dimethylformamide	21	15.5	0.7	6	--	4 - 56	SD	B	513
3.10 COPOLYMERS (MALEIC ANHYDRIDE, SULFONES)										
Poly[(tetrahydro-2,5-dioxo-3,4-furandiyl(1-isobutyloxyethylene)]										
	acetone	30	124.7	0.506	5	--	21 - 111	LS	B	504
	butanone	30	119.4	0.512	5	--	21 - 111	LS	B	504
	tetrahydrofuran	30	75.6	0.552	5	--	21 - 111	LS	B	504
Poly[(tetrahydro-2,5-dioxo-3,4-furandiyl(1-methoxycarbonyl-1-methylethylene)]										
	acetone	30	12.4	0.69	6	--	20 - 71	LS	B	505
	dimethylsulfoxide	30	7.5	0.77	6	--	20 - 71	LS	B	505
	dioxane	30	26.1	0.64	6	--	20 - 71	LS	B	505
	tetrahydrofuran	30	13.4	0.69	6	--	20 - 71	LS	B	505
Poly[(tetrahydro-2,6-dioxo-3,4-furandiyl)(1-phenylethylene)]										
	acetone	30	8.69	0.74	6	--	13 - 75	OS	A	506
	tetrahydrofuran	30	5.07	0.81	6	--	13 - 75	OS	A	506
Poly[sulfonyl(butylethylene)]										
	acetone	20	6.9	0.74	7	--	5 - 60	LS,SD	B	437
	benzene	25	8.9	0.70	5	--	9 - 107	OS	A,R	438
	chloroform	25	5.8	0.75	6	--	7 - 54	OS	A,R	439
	dioxane	25	6.2	0.76	6	--	9 - 107	OS	A	438
	hexylchloride	θ 13	33	0.55	5	--	10 - 60	LS,SD	B	437
	butanone/2-propanol									
	(29.8/70.2 vol)	θ 8	53	0.50	6	--	7 - 54	OS	A	439
	(37/63 vol)	θ 24	63	0.50	6	--	7 - 54	OS	A	439
	dioxane/hexane									
	(40/60 vol)	θ 20	65	0.50	7	--	9 - 107	OS	A	438
Poly[sulfonyl(1-methyl-1-propylethylene)]										
	chloroform	20	5.9	0.81	6	--	4 - 50	OS	A	439
	butanone/2-propanol									
	(30.5/60.5 vol)	θ 22.5	91	0.50	6	--	4 - 50	OS	A	439
	butanone/hexane									
	(35.4/64.6 vol)	θ 11.5	91	0.50	6	--	4 - 50	OS	A	439
Poly[sulfonyl(phenylethylene)]										
	tetrahydrofuran	30	3.89	0.78	5	--	15 - 40	OS	A	440
4. CELLULOSE AND DERIVATIVES										
Amylose	dimethyl sulfoxide	20	3.97	0.82	--	14	2 - 217	LS	C	517
		25	1.25	0.87	9	--	22 - 310	LS	B	518
		25	15.1	0.70			.6 - 180	LS	B	519
		25	30.6	0.64	6	--	27 - 220	LS	B	520
	ethylenediamine	25	15.5	0.70	6	--	31 - 310	LS	B	518
	formamide	20	22.6	0.67	--	12	2 - 157	LS	C	517

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Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	W.P.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
Amylose (Cont' d.)	formamide (Cont' d.)	25	30.5	0.62	14	--	8 - 180	LS	B	519
	water	20	13.2	0.68	--	12	36 - 217	LS	C	517
	acetone/dimethyl sulfoxide (43.5/56.5 vol)	θ 20	83.1	0.51	--	10	2 - 157	LS	C	517
	aqueous KCl (0.33M)	22.5	33.9	0.59	5	--	16 - 230	LS	B	521
		θ 25	112	0.50	5	--	16 - 230	LS	B	522
		θ 25	115	0.50	6	--	27 - 220	LS	B	520
	(0.50M)	θ 25	61.1	0.50					B	523
	aqueous KOH (0.15M)	25	8.36	0.77	?	--	8 - 180	LS	B	519
	(0.2M)	25	6.92	0.78	5	--	16 - 220	LS	B	522
	(0.5M)	25	8.50	0.76	6	--	27 - 220	LS	B	520
	(1M)	25	1.18	0.89	5	--	31 - 310	LS	B	518
	aqueous NaOH (0.5M)	20	3.65	0.85	--	16	2 - 217	LS	C	517
Amylose triacetate	chloroform	30	1.06	0.92	12	--	12 - 480	LS	B	524
		30	4.90	0.85	4	--	21 - 102	LS	A	525
		50	5.20	0.83	4	--	21 - 102	LS	A	525
	methyl acetate	25	5.60	0.80	--	3	7 - 19	SD	D	526
	nitromethane	22.5	8.50	0.73	12	--	14 - 310	LS	B	519,527
		30	9.99	0.76	4	--	21 - 102	LS	A	525
		50	8.71	0.76	4	--	21 - 102	LS	A	525
	chloroform/cyclohexane (80/20 vol)	30	4.64	0.85	4	--	21 - 102	LS	A	525
	(50/50 vol)	30	7.41	0.79	4	--	21 - 102	LS	A	525
	methanol/nitromethane (70.7/29.3 vol)	θ 30	98.4	0.51	4	--	21 - 102	LS	A	525
	(50/50 vol)	30	6.49	0.75	4	--	21 - 102	LS	A	525
	(25/75 vol)	30	10.23	0.76	4	--	21 - 102	LS	A	525
	nitromethane/propanol (43.3/56.7 vol)	θ 25	91.6	0.50	12	--	14 - 310	LS	B	519
	(50/50 vol)	25	17.0	0.66	12	--	14 - 310	LS	B	519
Amylose tricarbanilate	acetone	20	0.814	0.90	--	26	4 - 450	LS	B	528
	dioxane	20	0.906	0.92	--	25	4 - 360	LS	B	528
	pyridine	20	0.589	0.92	--	20	4 - 360	LS	B	528
Amylose tricarbethoxymethylcarbamate	acetone	20	27.6	0.63	13	--	9 - 380	LV	B	529
Carboxymethyl amylose, sodium salt	aqueous NaCl (0.36M)	37.5	25.2	0.64				LS	A	609
	(0.5M, pH 8)	35	209	0.53	6	--	5 - 27	OS	B	530
	(0.78M; 0.02% NaN_3)	35	37.1	0.61	6	--	7 - 29	LS	B	531
Diethylaminoethyl amylose hydrochloride	aqueous NaCl (0.78M: 0.02% NaN_3)	35	82.8	0.66	5	--	4 - 23	LS	B	531
Arginic acid, sodium salt	aqueous NaCl (0.2M)	25	7.97	1.0	--	7	5 - 19	OS	C	532
Cellulose, see also table "Properties of Cellulose Materials."	cadoxen	25	33.8	0.77	5	--	20 - 100	SD	C,R	533
		25	38.5	0.76	4	--	1.0 - 2.4	SE,LS	B-C,R	534
	cuprammonium	20	106	0.66	9	--	2 - 25	OS	C	536
		25	8.5	0.81	--	5	8 - 96	OS	C	536
	cuprietbylene	25	13.3	0.905	32	--	1 - 54	OS	B-C	537
Cellulose acetate butyrate	acetic acid	25	14.6	0.83	--	5	1 - 21	OS	B-C	538
	acetone	25	13.7	0.85	--	11	1 - 21	OS	B-C	538
Cellulose triacetate	acetone	20	2.38	1.0	5	--	2 - 14	SD	B	539
		25	14.9	0.82	8	--	2 - 39	OS	A(?)	540
		25	8.97	0.90	14	--	1 - 18	OS	B,R	541
		25	33.0	0.760	9	--	2 - 30	OS	C	535
	chloroform	30	4.5	0.9	5	--	3 - 18	LV	C	542

Polymer	Solvent	Temp. [°C]	K x 10^3 [ml/g]	a	No. of samples Fr.	W.P.	Mol. Wt. Range M x 10^{-4}	Method	Remarks	Ref.
Cellulose triacetate (Cont'd.)										
	o-cresol	30	6.16	0.9	5	--	3 - 18	LV	C	542
	acetone/water (80/20 vol)	20	2.65	1.0	9	--	2 - 11	SD	B	539
		25	21.0	0.803		--	2 - 30	OS	C	535
	ethanol/methylene chloride (20/80 vol)	25	13.9	0.834		--	2 - 30	OS	C	535
Cellulose tributyrate	butanone	30	4.3	0.87	7	--	6 - 32	LS	B,R	543
		30	18.2	0.80	7	--	8 - 22	OS	C-D	544,2
	tributyrin	0	5.3	0.87	4	--	6 - 32	LS	B	543
		25	5.6	0.85	4	--	6 - 32	LS	B	543
		50	6.1	0.82	4	--	6 - 32	LS	B	543
		70	6.2	0.80	4	--	6 - 32	LS	B	543
	dodecane/tetralin (75/25 vol)	θ130	82	0.50	3	--	11 - 21	OS	C-D	544,2
Cellulose tricarbanilate	acetone	0	1.10	0.93	0	--	31 - 220	LS	B-C	545
		20	4.66	0.84	--	16	7 - 270	LS	B	528
		25	1.43	0.91	6	--	31 - 220	LS	B-C,R	545
		35	1.81	0.90	6	--	31 - 220	LS	B-C	545
	anisol	θ 94	130	0.50	4	--	31 - 220	LS	B-C	546
	cyclohexanone	25	1.91	0.86	5	--	31 - 220	LS	B-C	545
		35	2.02	0.85	5	--	31 - 220	LS	B-C	545
	dioxane	20	4.20	0.88	--	15	7 - 270	LS	B	528
		25	0.813	0.97	5	--	31 - 220	LS	B-C	545
		35	0.865	0.96	5	--	31 - 220	LS	B-C	545
		50	0.869	0.95	4	--	31 - 94	LS	B-C	545
	pyridine	20	3.40	0.86	--	12	7 - 270	LS	B	528
Cellulose trihexanoate	dimethylformamide	θ 41	245	0.50	7	--	6 - 130	LS	C-D	547
	dioxane	35	125	0.67	7	--	4 - 130	LS	C-D	547
Cellulose trinitrate	acetone	20	2.80	1.00	13	--	1 - 250	SD	B	548
		25	1.69	1.00	11	--	8 - 255	LS	B-C	549
		25	1.66	0.86	6	--	68 - 250	LS	C	550
		25	10.8	0.89	4	--	4 - 32	LS	C-D	551
(N content, 12.9 wt%)		25	6.70	0.90	4	--	15 - 200	LS	A,R	552
(N content, 13.9 wt%)		25	6.93	0.91	6	--	8 - 400	LS	A,R	552
		25	7.00	0.933	9	--	5 - 50	OS	B-C	535
		25	11.0	0.91	33	--	3 - 100	OS	B-C	537
		25	23.5	0.78	6	--	7 - 26	OS	B-C	553
	butyl acetate	25	5.68	0.969	9	--	5 - 50	OS	B-C	535
	butyl formate	25	23	0.81	6	--	7 - 26	OS	B-C	553
	cyclohexanone	25	2.24	0.810	6	--	7 - 22	OS	B-C	554
	ethyl acetate	25	3.8	1.03	33	--	3 - 100	OS	B-C	537
		25	8.3	0.90	6	--	7 - 26	OS	B-C	553
		25	1.66	0.86	7	--	68 - 250	LS	C	550
		30	2.50	1.01	6	--	4 - 57	LS	B-C	555
	ethyl butyrate	25	3.64	1.0	7	--	5 - 50	OS	B-C	556
	ethyl formate	25	30	0.79	6	--	7 - 26	OS	B-C	553
	ethyl lactate	25	12.2	0.92	10	--	3 - 65	OS	B-C	537
	2-heptanone	25	5.0	0.83	6	--	7 - 26	OS	B-C	553
	methyl acetate	25	18.9	0.835	6	--	7 - 22	OS	B-C	554
	nitrobenzene	25	6.1	0.945	6	--	7 - 22	OS	B-C	554
	pentyl acetate	25	1.1	1.04	6	--	7 - 26	OS	B-C	553
Cellulose trioctanoate	dimethylformamide	θ140	113	0.50	3	--	10 - 32	OS	B-C	544
	γ-phenylpropanol	θ 48	129	0.60	3	--	8 - 32	OS	B-C	544
	toluene	30	17.3	0.70	6	--	8 - 35	OS	B-C	544
Ethyl cellulose	acetone	20	1.61	1.05	5	--	1.1 - 8	SD	A	557
	benzene	20	1.34	1.07	5	--	1.1 - 8	SD	A	557
		25	29.2	0.81	6	--	4 - 14	OS	B-C	558
		60	35.8	0.78	6	--	4 - 14	OS	B-C	558
	butanone	25	18.2	0.84	6	--	4 - 14	OS	B-C	558
		60	26.7	0.79	6	--	4 - 14	OS	B-C	558

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CALCULATED UNPERTURBED DIMENSIONS

Polymer	Solvent	Temp. [°C]	$K \times 10^3$ [ml/g]	a	No. of samples Fr.	No. of samples W.P.	Mol. Wt. Range $M \times 10^{-4}$	Method	Remarks	Ref.
Ethyl cellulose (Cont'd.)	butyl acetate	25	14.0	0.87	6	--	4 - 14	OS	B-C	558
		60	18.1	0.83	6	--	4 - 14	OS	B-C	558
	chloroform	25	11.8	0.89	6	--	4 - 14	OS	B-C	558
		46	9.3	0.90	6	--	4 - 14	OS	B-C	558
	ethyl acetate	20	10.7	0.89	6	--	4 - 14	OS	B-C	558
		60	14.0	0.85	6	--	4 - 14	OS	B-C	558
	methanol	25	52.3	0.65	6	--	10 - 41	LS	B-C	559
	nitroethane	25	4.2	0.96	6	--	4 - 14	OS	B-C	558
		60	22.6	0.79	6	--	4 - 14	OS	B-C	558
Ethyl hydroxyethyl cellulose	water	25	37	0.80	4	--	5 - 18	SD, LS	B	560
Hydroxyethyl cellulose	cadoxen	25	17.4	0.79	4	--	8 - 61	LS	B	561
	water	25	9.53	0.87	5	--	8 - 63	LS	B	561
D.S.* 0.88	aqueous HCl (4M)	25	$[\eta]=1.2DP_w^{0.87}$ (DP_w; weight-average degree of polymerization)						B	562
Methyl cellulose										
D.S.* 1.74	water	25	816	0.55	--	5	12 - 57	LS	C-D	563
	aqueous HCl (4M)	25	$[\eta]=1.6DP_w^{0.80}$					LS	B	562
Sodium carboxymethylcellulose										
D.S.* 0.2-1.0	cadoxen	25	33.4	0.73	--	5	5 - 106	LS	C	564
									B	562
D.S.* 0.96	aqueous HCl (4M)	25	$[\eta]=0.97DP_w^{0.83}$							
D.S.* 0.62-0.74	aqueous NaCl (0.001M)	25	0.100	1.40	8	--	4.5 - 35	SD	C-D	565
	(0.01M)	25	0.646	1.20	3	--	4.5 - 35	SD	C-D	565
	(0.1M)	25	12.3	0.91	8	--	4.5 - 35	SD	C-D	565
D.S.* 1.08	(0.005M)	25	7.2	0.95	4	--	14 - 106	LS	C-D	566
	(0.01M)	25	8.1	0.92	4	--	14 - 106	LS	C-D	566
	(0.05M)	25	19	0.82	4	--	14 - 106	LS	C-D	566
	(0.2M)	25	43	0.74	4	--	14 - 106	LS	C-D	566
Sodium cellulose xanthate	aqueous NaOH (1M)	0	$[\eta]=1.67DP_w^{0.82}+0.62DS_{2,3}-0.20DS_6\ DP_w^{0.94}$						C	567
			DS_i, degree of substitution at the i(=2,3 or 6) positions in glucose unit							
Dextran, linear fraction	formamide	25	16.5	0.49	5	--	0.2 - 3.2	OS	C	568
	water	25	97.8	0.50	10	--	2 - 10	LS	C,R	569
		25	49.3	0.50	10	--	0.04 - 4.5	EA	C	570
		50	39.3	0.61	5	--	0.2 - 3.2	OS	C	568
branched fraction	water	25	--	0.20	9	--	80	LS	C	569
		32.7			6	--				571
Guarm triacetate	acetonitrile	25	2.62	0.87	4	--	7 - 65	LS	A	572
		25	311	0.52	5	--	206 - 534	LS	B	572
Hyaluronic acid	aqueous HCl (0.1M)	25	27.9	0.763	5	--	7 - 103	LS	A	573
	aqueous NaCl (0.2M)	25	22.8	0.816	8	--	7 - 103	LS	A	573
	(0.5M)	25	31.8	0.777	5	--	11 - 103	LS	A	573
Salep glucomannan triacetate	nitroethane	30	this relation not followed		11	--	0.06 - 0.4	LS	A-B	574

D. CALCULATED UNPERTURBED DIMENSIONS OF FREELY-ROTATING CHAINS

Chain Type	$r_{oi}/M^{1/2}$ [nm $mol^{1/2}$ $g^{-1/2}$]		References
Polymethylene chain	$0.308/M_{u1/2}^{1/2}$	$0.218/m^{1/2}$	2
Amylosic chain	$0.426/M_{u1/2}$	$0.191/m_{1/2}$	518
Cellulosic chain	$0.790/M_{u1/2}$	$0.353/m_{1/2}$	620
Gutta-percha (trans polydiene)	$0.580/M_{u1/2}$	$0.290/m_{1/2}$	620, 621
Natural rubber (cis polydiene)	$0.402/M_{u1/2}$	$0.201/m_{1/2}$	620
Polypeptide	$0.393/M_u$	$0.221/m$	620

*D.S. - Degree of Substitution

E. UNPERTURBED DIMENSIONS OF LINEAR POLYMER MOLECULES

(References in parenthesis give data which were used for calculation of end-to-end distance in Ref. 3.)

Polymer	Solvent	Temp. [°C]	$S_{oz}/M_w^{1/2}$ or a_p x 10^4 [cm]	K_θ x 10^3 [ml/g]	$r_o/M^{1/2}$ x 10^4 [cm]	$r_{of}/M^{1/2}$ x 10^4 [cm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
1. MAIN-CHAIN ACYCLIC-CARBON POLYMERS										
1.1 POLY(DIENES)										
Poly(butadiene)										
100%-cis	dioxane	20.2	--	205	820	547	1.68	5.15	VT	19
98%-cis, 2%-1,2	isobutyl acetate	20.5	--	185	880	547	1.61	4.75	VT	15
95%-cis, 4%-1,2	2-pentanone	59.7	--	157	836	546	1.53	4.3	VT	17
	3-pentanone	10.9	--	152	825	546	1.51	4.2	VT	17
92%-cis, 5%-1,2	benzene	32	--	150± 20	820± 40	545	1.50±0.08	4.15	VG	3(20)
21%-trans, 25%-1,2	cyclohexane	25	--	300± 40	1030± 50	702	1.45±0.08	7.3	VG	3(22)
79%-trans, 21%-1,2	cyclohexane	20	--	280± 25	1010± 30	742	1.36±0.05	6.9	VG	3(23)
97%-trans, 3%-1,2	cyclohexane	40	--	200± 30	935± 40	768	1.22±0.07	5.4	VG	24
100%-cis	various solvents	50					1.63	4.9	VT	822
	undiluted	50~90	$d\ln r_o^2/dT = 0.4 \times 10^{-3}$ [deg^{-1}]						ST	822
100%-trans	decalin	55					1.23	5.8	VA	623
	undiluted		$d\ln r_o^2/dT = -0.6 \times 10^{-3}$ [deg^{-1}]						ST	623
Poly(chloroprene)										
85%-trans	benzene	25	--	116± 20	750± 30	535	1.40±0.15	5.6	VG	3(32,33)
	butanone	25	--	113	750	535	1.40	5.6	VT	35
	cyclohexane	45.6	--	107	755	535	1.41	5.65	VT	34
	butanone	25	313	--	750	535	1.40	5.6	LT	624
Poly(isoprene)										
100%-cis	benzene; 2-pentanone	~20	--	130± 20	810± 45	486	1.67±0.09	5.0	VT,VG	3,37
	diisopropyl ether	22	0.76	--	847	486	1.74	5.5	XS	625
	2-pentanone	14.5		119				4.7	VT	626
	undiluted	-10~70	$d\ln r_o^2/dT = 0.41 \times 10^{-3}$ [deg^{-1}]						ST	626
		30~70	$d\ln r_o^2/dT = 0.56 \times 10^{-3}$ [deg^{-1}]						ST,VT	627
100%-trans	propyl acetate	60	--	232	970	703	1.38	7.2	VT	37
	dioxane	47.7		191	910	703	1.30	6.35	VT	19
	undiluted	~60	$d\ln r_o^2/dT = -0.27 \times 10^{-3}$ [deg^{-1}]						ST	623

Polymer	Solvent	Temp. [°C]	S_{oz}/M_w or a_p x 10^4 [nm]	K_o x 10^3 [ml/g]	$r_o/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
1.2 POLY(ALKENES)										
Poly(1-butene)										
atactic	anisole; ethylcyclohexane	~70	--	123± 10	775± 25	427	1.82±0.06	6.6	VT,VG	3(81)
	nonane	35	590± 50	--	1180± 70	427	2.76±0.20	15.1	LT	81
	undiluted	140~200 din $r_o^2/dT = (0.5\pm0.04) \times 10^{-3}$ [deg^{-1}]							ST	633
isotactic	nonane	80	510± 50	--	1290± 90	427	3.00±0.20	16.9	LT	81
	undiluted	140~200 din $r_o^2/dT = (0.09\pm0.07) \times 10^{-3}$ [deg^{-1}]							ST	634
		160 din $r_o^2/dT = -0.1 \times 10^{-3}$ [deg^{-1}]							ST	634
Poly(ethylene)	1-chloronaphthalene; tetralin;	~100	--	230	950± 40	582	1.63±0.08	5.3	VG	3(61,67,74)
	p-xylene	140	--	--	1070	582	1.84	6.8	VA	65
	decalin	145	--	225	940± 40	582	1.81	6.2	VT	630
	bis-2-ethylhexyl adipate	145	690±100	--	1320±150	582	2.27±0.26	10.3	LT	630
	biphenyl	127.5	--	323	1085	582	1.87	7.0	VT	58
	dodecanol	137.3	--	307	1070	582	1.84	6.8	VT	58
		138	--	316± 7	1080	582	1.86	6.9	VT	89
	diphenylmethane	142.2	--	315	1080	582	1.86	6.8	VT	58
	decanol	153.3	--	302	1065	582	1.83	7.6	VT	65
	diphenyl ether	161.4	--	295	1060	582	1.79	6.4	VT	58
	octanol	180.1	--	288	1040	582	1.79	6.4	VT	58
	biphenyl	127.5	--	330	1085	582	1.88	7.1	VT	631
	diphenylmethane	142.2	--	322	1085	582	1.87	7.0	VT	634
	diphenyl ether	163.9	--	308	1070	582	1.84	6.8	VT	631
	undiluted; diluted with tri-acontane; dotriacontane	140~180 din $r_o^2/dT = -(1.15\pm0.1) \times 10^{-3}$ [deg^{-1}]								
	hexadecane	140 din $r_o^2/dT = -1.2 \times 10^{-3}$ [deg^{-1}]								
Poly(isobutene)	anisole	105	--	91± 5	700± 20	412	1.70±0.05	5.8	VT	49
	benzene	24	--	107± 5	740± 20	412	1.80±0.05	6.5	VT	49
	phenetole	86	--	91± 5	700± 20	412	1.70±0.05	5.8	VT	49
	heptane/propanol (80/20 vol)	25	390	166	790	412	1.9	7.2	LT	628
	undiluted; diluted with hexa-decane	60 din $r_o^2/dT = -(0.1\pm0.05) \times 10^{-3}$ [deg^{-1}]							ST	629
Poly(1-octene)	bromobenzene	25	--	50	570± 50	291	1.98±0.15	7.7	VG	84
	cyclohexane	30	--	100	710± 60	291	2.44±0.20	11.9	VG	84
	phenetole	50.4	--	65	625± 30	291	2.14±0.10	9.1	VT	84
Poly(1-pentene)									ST	633
atactic	undiluted	40-140 din $r_o^2/dT = (0.53\pm0.05) \times 10^{-3}$ [deg^{-1}]							VT	633
isotactic	2-pentanol	62.4	--	121	780	368	2.14	9.2	ST	633
	undiluted	80~140 din $r_o^2/dT = (0.34\pm0.04) \times 10^{-3}$ [deg^{-1}]								

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Polymer	Solvent	Temp. [°C]	$S_{oz}/M_w^{1/2}$ or θ_p x 10^4 [nm]	K_θ x 10^3 [ml/g]	$r_o/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
Poly(1-pentene) (Cont'd.)										
isotactic	undiluted	~90	din $r_o^2/dT = -0.3 \times 10^{-3}$ [deg^{-1}]						ST	634
		~60	din $r_o^2/dT = -0.2 \times 10^{-3}$ [deg^{-1}]						ST	635
Poly(propylene)										
atactic	isoamyl acetate; benzene; cyclohexane; toluene	30	--	156± 15	835± 25	475	1.76±0.05	8.2	VT,VG	3(88,89)
	decalin	135	--	125± 20	775± 35	475	1.63±0.08	5.3	VG	3(88,91)
	1-chloronaphthalene	74	--	182	980	475	1.85	8.85	VT	90
	cyclohexanone	92	--	172	870	475	1.83	8.7	VT	90
	diphenyl ether	153	--	120	765	475	1.61	5.2	VT	90
isotactic	1-chloronaphthalene; decalin; tetralin	~140	--	120± 20	765± 40	475	1.61±0.08	5.2	VG	3(88,96)
	diphenyl ether	145	--	132	790	475	1.66	5.5	VT	90
		145	--	94	710	475	1.49	4.45	VT	630
		145	370± 30	--	685± 30	475	1.44±0.07	4.15	LT	630
	biphenyl	125.1	--	152	909	475	1.70	5.8	VT	94
	diphenyl ether	142.8	--	137	782	475	1.62	5.25	VT	94
	dibenzyl ether	183.2	--	106	719	475	1.51	4.56	VT	94
syndiotactic	heptane	30	--	164	930	475	1.75	8.1	VG	100
	isoamyl acetate	45	--	172	943	475	1.77	8.25	VT	100

5.3 POLY(ACRYLIC ACID) AND DERIVATIVES

Poly(acrylamide)	water	30	--	260± 40	1000± 50	367	2.72±0.10	14.8	VG	3(101)
Poly(acrylic acid)	1,4-dioxane	30	--	76	685	363	1.93	8.7	VT	104
--, sodium salt	aqueous NaBr (1.5M)	15	--	124	756	318	2.38	11.3	VT	108,109
		15	--	--	1030	318	3.24	21	LD	108
	aqueous NaSCN (1.25M)	30	--	121	752	318	2.36	11.1	VT	111
Poly(acrylonitrile)	dimethylformamide	25	--	210± 15	930± 20	422	2.20±0.05	9.7	VG	3(138,139)
(polymd. at -30°C)	γ-butyrolactone; dimethyl-formamide	30	--	250	970	422	2.30	10.6	VG	135
(polymd. at 60°C)		30	--	200	900	422	2.13	9.1	VG	135
Poly(butyl acrylate)	undiluted	60	din $r_o^2/dT = -0.2 \times 10^{-3}$ [deg^{-1}]						ST	635
		76	din $r_o^2/dT = 0$ [deg^{-1}]						ST	634
Poly(sec-butyl acrylate)	undiluted	60	din $r_o^2/dT = -0.2 \times 10^{-3}$ [deg^{-1}]						ST	635
Poly(tert-butyl acrylate)	undiluted	60	din $r_o^2/dT = -0.2 \times 10^{-3}$ [deg^{-1}]						ST	635
Poly(N,N'-dimethylacryl-amide)	methanol; water	25	--	78± 15	670± 40	309	2.17±0.14	8.15	VG	3(103)
Poly(dodecyl acrylate)	undiluted	60	din $r_o^2/dT = 1.0 \times 10^{-3}$ [deg^{-1}]						ST	635
Poly(ethyl acrylate)	acetone; methanol	30	--	90± 10	720± 30	308	2.34±0.10	10.0	VG	3(115,116)
	acetone	25	--	--	856	308	2.78	15.4	VG	114

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Polymer	Solvent	Temp. [°C]	$S_{ox}/M_w^{1/2} \times 10^4$ or s_p [nm]	$K_\theta \times 10^3$ [ml/g]	$r_\theta/M^{1/2} \times 10^4$ [nm]	$r_{bf}/M^{1/2} \times 10^4$ [nm]	$\sigma = r_b/r_{bf}$	$C_\infty = r_b^2/nl^2$	Method	References
Poly(ethyl acrylate) (Cont'd.)	undiluted	60 din $r_{o_2}^2/dT = -0.2 \times 10^{-3}$ [deg^{-1}]							ST	635
		76 din $r_{o_2}^2/dT = -0.4 \times 10^{-3}$ [deg^{-1}]							ST	634
		60 din $r_{o_2}^2/dT = -0.3 \times 10^{-3}$ [deg^{-1}]							ST	635
Poly(hexyl acrylate)	undiluted	60 din $r_{o_2}^2/dT = -0.2 \times 10^{-3}$ [deg^{-1}]							ST	635
Poly(isopentyl acrylate)	undiluted	25	--	--	640± 25	287	1.88±0.08	7.1	VA	120
Poly(isopropyl acrylate)	benzene	60	--	--	540± 25	287	1.88±0.08	7.1	VA	120
	bromobenzene	25	--	92	790± 30	287	2.42±0.10	11.7	VG	121
	2,2,3,3-tetrafluoropropanol	60 din $r_o^2/dT = -0.3 \times 10^{-3}$ [deg^{-1}]							ST	635
	undiluted	60	--	--	630± 30	287	2.20±0.10	9.7	VA	120
isotactic	bromobenzene	60	--	--	540± 35	287	1.90±0.12	7.2	VA	120
syndiotactic	bromobenzene	30	--	81± 10	680± 30	332	2.05±0.10	8.4	VG	3(123,132)
Poly(methyl acrylate)	various solvents	62.5	--	68	650	332	1.86	7.7	VT	128
	isopentyl acetate	58.0	--	68	650	332	1.86	7.7	VT	129
	2-methylcyclohexanol	20	--	81	680	332	2.05	8.4	VT	124
	butanone/2-propanol (42/58 vol)	30	--	72	665	332	2.00	8.0	VT	129
	(50/50 vol)	27.5	--	--	720	332	2.11	9.4	LD	108
	undiluted	60 din $r_o^2/dT = -0.2 \times 10^{-3}$ [deg^{-1}]							ST	635
Poly(octyl acrylate)	undiluted	60 din $r_o^2/dT = -0.2 \times 10^{-3}$ [deg^{-1}]							ST	635
Poly(morpholinocarbonylethylene)	dimethylformamide	25	--	70± 10	630± 40	260	2.42±0.15	11.7	VG	3(339)
Poly(piperidinocarbonylethylene)	dimethylformamide	25	--	68± 10	600± 40	261	2.30±0.15	10.8	VG	3(338)
Poly(propyl acrylate)	undiluted	60 din $r_o^2/dT = -0.3 \times 10^{-3}$ [deg^{-1}]							ST	635

1.4 POLY(α-SUBSTITUTED ACRYLIC ACID) AND DERIVATIVES

Poly(butyl methacrylate)	butanone: 2-propanol	23	--	34± 5	510± 20	256	1.88±0.10	7.85	VT,VG	3(152,154,156)
	2-propanol	23	--	--	530	259	2.06	9.5	LD	152
	undiluted	60 din $r_o^2/dT = 2.6 \times 10^{-3}$ [deg^{-1}]							ST	635
Poly(sec-butyl methacrylate)	undiluted	60 din $r_{o_2}^2/dT = -0.2 \times 10^{-3}$ [deg^{-1}]							ST	635
Poly(tert-butyl methacrylate)	butyl acetate	25	--	--	894	259	3.45	23.8	VA	157
Poly(tert-butylphenyl methacrylate)	acetone	20	--	35± 5	515± 20	208	2.48±0.10		VG	3(340)
Poly(cyclohexyl methacrylate)	butanol	23	--	34	530	237	2.15	9.25	VT	345
Poly(dodecyl methacrylate)	isopropyl acetate	13	--	32.2	490	183	2.54	12.9	VT	158
	pentanol	29.6	--	34.9	500	193	2.59	13.4	VT	159
		29.5	222	--	500	193	2.59	13.4	LD	159
	undiluted	60 din $r_o^2/dT = 2.6 \times 10^{-3}$ [deg^{-1}]							ST	636
Poly(2-ethylbutyl methacrylate)	butanone: 2-propanol	25	--	36± 5	510± 30	236	2.16±0.13	9.3	VG,VT	3(160)
	2-propanol	27.4	--	33.7	500	236	2.12	8.95	VT	160

Polymer	Solvent	Temp. [°C]	$S_{o2}/M_w^{1/2}$ or s_p x 10^4 [nm]	K_θ x 10^3 [ml/g]	$r_o/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
Poly(ethyl methacrylate)	butanone	23	--	49.3	565± 15	288	1.96±0.05	7.7	VG	3(161)
	2-propanol	36.5	--	47.5	575	288	2.00	8.0	VT	156
	butanone/2-propanol (1/7 vol)	23	--	47.3	560	288	1.94	7.55	VT	161
		23	--	--	560	288	1.94	7.55	LD	161
Poly(hexadecyl methacrylate)	heptane	21	--	60	620	175	3.54	25.1	VG	163
Poly(hexyl methacrylate)	butanone	30	--	41± 4	530± 20	236	2.25±0.08	10.1	VT,VG	3(165)
	2-propanol	32.5	--	43	540	236	2.29	10.5	VT	165
		32.6	--	--	580	236	2.46	12.1	LD	165
	undiluted	60	$d\ln r_{o2}^2/dT = 2.2 \times 10^{-3}$ [deg^{-1}]						ST	635
Poly(isopentyl methacrylate)	undiluted	60	$d\ln r_{o2}^2/dT = 1.4 \times 10^{-3}$ [deg^{-1}]						ST	635
Poly(isopropyl methacrylate)	undiluted	60	$d\ln r_o^2/dT = 2.5 \times 10^{-3}$ [deg^{-1}]						ST	635
Poly(methacrylic acid)	aqueous NaCl	25	--	200	900	334	2.7	14.6	VG	110
Poly(methyl butacrylate)	butanol	19	--	57	590	258	2.28	10.4	VT	169
Poly(methyl ethacrylate)	2,6-dimethyl-4-heptanone	11.4	--	67.6	620	288	2.15	9.25	VT	168
Poly(methyl methacrylate) atactic	various solvents	25	--	70± 20	640± 60	308	2.08±0.20	8.65	VT,VG	3(170,173,174 181,193,195)
	butyl chloride	35.4	219	--	537	308	1.74	6.05	LT	636
		40.8	292± 6	--	620± 15	308	2.01±0.05	8.1	LT	283
	benzene, toluene	21	0.72±0.05	--	653± 25	308	2.12±0.08	9.0	XS	637
	2-methyl-4-pentanone	-42	--	36.0	500	308	1.62	5.25	VT	636
	methyl isovalerlate	-37	--	41.5	525	309	1.70	5.8	VT	636
	butyl acetate	-20	--	40.6	520	308	1.69	5.7	VT	636
	butanone/2-propanol									
	(58.2/41.8 vol)	4.0	--	47.2	550	308	1.78	6.35	VT	636
	(55/45 vol)	12.8	--	49.8	560	308	1.82	6.65	VT	636
	(50/50 vol)	22.8	--	50.4	610	308	1.98	7.85	VT	636
	(46.8/53.2 vol)	28.6	--	50.8	610	308	1.89	7.95	VT	636
	butyl chloride	35.4	--	52.6	620	308	2.00	8.0	VT	636
	4-heptanone	40.4	--	53.2	620	308	2.01	8.1	VT	636
	isoamyl acetate	57.5	--	53.5	620	308	2.01	8.1	VT	636
	4-heptanone	33	--	47± 4	550± 15	308	1.78±0.05	6.35	VT	179
	acetonitrile	45	--	49± 5	555± 15	308	1.80±0.05	6.5	VT	179
	3-octanone	72	--	50± 3	560± 10	308	1.82±0.03	6.65	VT	179
	undiluted	168	$d\ln r_o^2/dT = 0.1 \times 10^{-3}$ [deg^{-1}]						ST	634
Isotactic	acetonitrile	27.6	--	75.5	670	308	2.17	9.4	VT	198
	butanone/2-propanol (50/50 vol)	30.3	--	90	715	308	2.32	10.8	VT	191
	3-heptanone	40	--	87	710	308	2.30	10.8	VT	191
	propanol	75.9	--	76.1	680	308	2.21	9.75	VT	191
	p-cymene	152.1	--	56.6	610	308	1.98	7.85	VT	191
Poly(octyl methacrylate)	butanol; butanone	20	--	30± 5	480± 20	219	2.19±0.09	9.6	VT,VG	3(201)
	butanol	16.8	--	--	500	219	2.28	10.4	LD	201

UNPERTURBED DIMENSIONS

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Polymer	Solvent	Temp. [°C]	$S_{oz}/M_w^{1/2}$ x 10^4 [nm]	K_θ x 10^3 [ml/g]	$r_o/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
Poly(octyl methacrylate) (Cont'd.)	undiluted	80 din r_o^2/dT = 2.2 x 10^{-3} [deg^{-1}]							ST	635
Poly(N-phenylmethacrylamide)	acetone	20	--	38± 9	520± 40	242	2.15±0.18	8.25	VG	3(370)

1.5 POLY(VINYL ETHERS), POLY(VINYL ALCOHOL), POLY(VINYL ESTERS), POLY(VINYL HALIDES)

Poly(chlorotrifluoroethylene)	2,5-dichlorobenzotrifluoride	130	--	52± 3	580± 15	286	2.03±0.01	8.25	VG	3(234)
Poly(methoxyethylene)	benzene; butanone	30	--	195± 30	900± 50	404	2.23±0.13	9.95	VG	3(206)
Poly(tetrafluoroethylene)	perfluorokerosene	300	--	~300	1070	308	~3.5	24	VG	690
Poly(vinyl acetate)	various solvents	25	--	93± 10	705± 10	332	2.12±0.03	9.0	VT,VG	3(242,244, 252,255)
	3-heptanone	29	0.85±0.05	--	780± 20	332	2.38±0.07	11.3	XS	641
	heptane/3-methyl-2-butanone (28.8/73.2 vol)	25	318± 10	--	745± 20	332	2.24±0.07	10.0	LT	252
	methanol	8	--	101	720	332	2.17	9.4	VT	238
	3-heptanone	28.8	--	82.0	670	332	2.02	8.15	VT	238
	ethanol	56.9	--	90	690	332	2.08	8.65	VT	236
	5-methyl-3-heptanone	68	--	78	660	332	1.99	7.9	VT	238
	water	30	--	222± 25	960± 40	464	2.04±0.10	8.3	VG	3(208,210,212)
Poly(vinyl alcohol)	undiluted	50 din r_o^2/dT = 0.0 [deg^{-1}]							ST	638
		90 din r_o^2/dT = 0.5 x 10^{-3} [deg^{-1}]							ST	639
Poly(vinyl benzoate)	xylene	32.5	--	62± 8	620± 25	252	2.46±0.10	12.1	VT	334
Poly(vinyl bromide)	cyclohexane; tetrahydrofuran; methanol/THF (17/83 vol)	20	--	40± 5	640± 20	298	1.82±0.07	6.8	VT,VG	3(217,218)
	1-methylnaphthalene	~20	1.09	--	763	298	2.56	13.1	XS	640
Poly(vinyl butyrate)	benzene	30	--	80± 10	670± 35	289	2.32±0.12		VG	3(256)
Poly(vinyl chloride)	cyclohexanone; tetrahydrofuran	~25	--	100± 30	393		1.83±0.15	6.7	VG	3(221,223,224,229)
	benzyl alcohol	155.4	--	156	820	393	2.08	8.65	VT	219
Poly(vinyl 4-chlorobenzoate)	butanol/butanone (47/53 vol)	60	--	73	665	228	2.92	17.1	VT	396
Poly(vinyl fluoride)	dimethylformamide	90	--	128	787	457	1.72	5.9	VG	235
Poly(vinyl hexanoate)	benzene	30	--	91± 10	700± 30	258	2.71±0.12		VG	3(256)
Poly(vinyl isobutyrate)	benzene	30	--	80± 10	670± 35	288	2.32±0.12		VG	3(256)
Poly(vinyl methyl ether), see Poly(methoxyethylene)										
Poly(vinyl pivalate)	butanone/methanol (0.897 g/ml)	20	--	53± 5	580± 20	253	2.29±0.08		VT	258

1.6 POLY(STYRENE) AND DERIVATIVES

Poly(4-bromostyrene)	benzene	26.3	--	50	670	229	2.50	12.5	VT	348
	toluene	30	--	45	584	228	2.48	12.3	VG	349
		30	237	--	554	228	2.43	11.8	LG	349
Poly(4-chlorostyrene)	butanone; chlorobenzene; toluene	30	--	50± 5	560± 20	281	2.15±0.07	9.25	VG	3(352,355),353

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Polymer	Solvent	Temp. [°C]	$S_{oz}/M_w^{1/2}$ x 10^4 [nm]	K_θ x 10^3 [ml/g]	$r_o/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
Poly(4-chlorostyrene)	toluene	30	--	58	615	281	2.36	11.1	VG	349
(Cont'd.)		30	272	---	615	281	2.36	11.1	LG	349
Poly(4-cyclohexylstyrene)	heptane; toluene	30	--	53± 3	570± 20	226	2.52±0.07	12.7	VG	266
	toluene	60	--	51± 3	560± 20	226	2.49±0.07	12.2	VG	266
Poly(2,5-dichlorostyrene)	ethanol/ethyl acetate (1/15 wt)	30.5	--	35.5	510	234	2.18	9.5	VT	3(357)
Poly(3,4-dichlorostyrene)	butanol/butyl acetate (1/13 wt)	32.8	--	71	660	234	2.7	14.6	VT	359
	chlorobenzene; o-dichloro-benzene	30	--	39± 5	510± 20	234	2.18±0.08	9.5	VG	358
Poly(2,4-dimethylstyrene)	toluene	30	--	60± 5	630± 15	268	2.35±0.07	11.0	VG	333
Poly(o-methoxystyrene)	methanol/toluene (25/75 vol)	30	--	57.5	600	286	2.26	10.2	VT	362
Poly(p-methoxystyrene)	methanol/toluene (28.1/71.9 vol)	30	--	62.1	630	286	2.37	11.2	VT	362
Poly(α-methylstyrene)		~30	--	76± 5	650± 15	284	2.29±0.05	10.5	VT,VG	319,323
anionic (atactic)	benzene; cyclohexane	9.5	--	67± 2	625± 5	284	2.20±0.02	9.7	VT	320
	trans-decalin	~38	--	76± 2	650± 10	284	2.29±0.03	10.5	VT	320,321,322,323
cationic (syndiotactic)	cyclohexane	30	--	74± 10	670± 25	284	2.36±0.10	11.1	VT,VG	3(329,327)
	toluene; benzene/methanol (79.4/20.6 vol)	~33	--	69± 3	655± 10	284	2.31±0.03	10.7	VT	328
Poly(m-methylstyrene)	cyclohexane	30	--	84.0	664	284	2.34	11.0	VG	330
	benzene; cyclohexane; ethyl acetate	40	--	88.8	671	284	2.37	11.2	VG	330
		50	--	89.7	678	284	2.38	11.4	VG	330
Poly(p-methylstyrene)	butanone; cyclohexane; toluene	30	--	69± 5	620± 15	284	2.18±0.05	9.5	VG	651,331
	diethyl succinate	16.4	--	70	655	284	2.31	10.7	VT	331
		16.4	291	--	690	284	2.39	11.4	LT	331
Poly(styrene)									VT,VG	3(274,277,279,
atactic	various solvents	~30	--	82± 5	670± 15	302	2.22±0.05	9.85		282,286,299,301,304)
	ethylcyclohexane; methyl-cyclohexane	~70	--	75± 5	650± 15	302	2.15±0.05	9.25	VT	3(292,299)
		34	282± 5	--	690± 10	302	2.28±0.04	10.4	LT	643
	cyclohexane	35	306	--	730	302	2.42	11.7	LT	278
		36	300	--	670	302	2.22	9.85	LT	644
		35	0.92±0.03	--	705± 15	302	2.33±0.05	10.9	XS	645
		25	0.91±0.02	--	700± 15	302	2.32±0.04	10.8	XS	645
	benzene; toluene	25	286	--	645	302	2.14	9.15	LT	628
	benzene/ethanol (71.5/28.5 vol)	67	317	--	757	302	2.50	12.5	LT	278
	butanone/2-propanol (97/13 vol)	32.8	--	--	775	302	2.56	13.1	VA	646
	1-chlorodecane	34.8	--	--	768	302	2.54	12.9	VA	646
	cyclohexane	35.9	--	--	762	302	2.52	12.7	VA	646

Polymer	Solvent	Temp. [°C]	$S_{or}/M_{w\,or\,\eta}^{1/2} \times 10^{4}$ [nm]	$K_o \times 10^{3}$ [ml/g]	$r_o/M^{1/2} \times 10^{4}$ [nm]	$r_{of}/M^{1/2} \times 10^{4}$ [nm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
Poly(styrene) (Cont'd.)	73%-trans-decalin	18	--	71	655	302	2.17	9.4	VT	290
	100%-trans-decalin	24	--	82	670	302	2.22	9.85	VT	290
	butyl formate	-9	--	77.4	655	302	2.17	9.4	VT	647
	hexyl-m-xylol	12.5	--	77.0	656	302	2.17	9.4	VT	647
	decalin	29.5	--	77.9	655	302	2.17	9.4	VT	647
	diethyl malonate	31	--	70.5	625	302	2.10	8.8	VT	647
	cyclohexane	34	--	79.5	650	302	2.19	9.5	VT	647
	diethyl oxalate	51.5	--	72.2	640	302	2.12	9.0	VT	647
	methylcyclohexane	68	--	78.0	655	302	2.17	9.4	VT	647
	cyclohexanol	83.5	--	50.8	575	302	1.90	7.2	VT	648
	1-chlorodecane	6.8	--	78.0	655	302	2.17	9.4	VT	648
	1-chloroundecane	32.8	--	78.7	660	302	2.18	9.5	VT	648
	1-chlorododecane	58.6	--	80.7	665	302	2.20	9.7	VT	648
	cyclohexane/methylcyclohexane (1/0)	34.5	--	77.9	655	302	2.17	9.4	VT	291
	(2/1 vol)	43.0	--	77.6	655	302	2.17	9.4	VT	291
	(1/1 vol)	48.0	--	74.8	650	302	2.15	9.25	VT	291
	(1/2 vol)	54.0	--	73.0	645	302	2.14	9.15	VT	291
	(0/1)	10.5	--	69.6	635	302	2.10	8.8	VT	291
	diethyl malonate	34.2	--	71.8	640	302	2.12	9.0	VT	291
	diethyl oxalate	55.8	--	73.0	645	302	2.14	9.15	VT	291
	undiluted	150	$d\ln r_o^2/dT = 0.4 \times 10^{-3}$ [deg^{-1}]						ST	634
atactic, anionic	cyclohexane	~34.5	--	88± 3	685± 10	302	2.27±0.03	10.3	VT	301,302,303
	decalin; dioctyl phthalate	12~22	--	80± 1	665± 5	302	2.20±0.02	9.7	VT	305,649
isotactic	benzene; toluene	30	--	90± 10	695± 25	302	2.30±0.08	10.5	VG	303,649
	chlorobenzene	25.9	--	176	880	302	2.84	17.3	VG	3(311,312,314)
Poly(styrene-p-sulfonic acid) --, sodium salt	aqueous NaCl (4.17M); aqueous KCl (31.M)	25	--	20.4	425	214	1.98	7.85	VT	650

1.7 OTHERS

Poly[(biphenyl-4-yl)ethylene]	benzene	30	--	63.0	605	230	2.63	13.8	VG	364
		20~75	$d\ln r_o^2/dT = (0.23\pm0.01) \times 10^{-3}$ [deg^{-1}]						VG	364
Poly(carbanilinoxyethylene)	dioxane/methanol (28/72 vol)	20	--	75	880	241	2.82	15.9	VT	335
Poly(1-methoxycarbonyl-1-phenylethylene)	benzene; chloroform	30	--	54± 1	585± 5	242	2.42±0.02	11.7	VG	361
	ethylbenzene	15	--	54± 1	585± 5	242	2.42±0.02	11.7	VT	361
Poly(vinyl carbazole)	toluene	37	--	78.2±5	633	222	2.85	16.2	VT	368
	benzene; chloroform; tetrachloroethane; tetrahydrofuran	25	--	68± 2	619	222	2.82	15.9	VG	367

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Polymer	Solvent	Temp. [°C]	$S_{oz}/M_w^{1/2}$ or a_p x 10^4 [nm]	K_θ x 10^3 [ml/g]	$r_o/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o/nl^2$	Method	References
Poly(1-vinylnaphthalene)	benzene	30	--	24.2	435	248	1.76	6.2	VG	264
		75	--	--	406	248	1.63	5.3	VG	264
		20~75 din $\langle r_o^2\rangle/dT$ = -(1.87±0.04) x 10^{-3} [deg^{-1}]							VG	264
Poly(2-vinylnaphthalene)	benzene	30	--	64.7	610	248	2.45	12.0	VG	264
		65	--	--	585	248	2.40	11.5	VG	264
		20~75 din $\langle r_o^2\rangle/dT$ = -(0.83±0.03) x 10^{-3} [deg^{-1}]							VG	264
	decalin/toluene (13/10 wt)	30.2	--	--	--	248	ca. 3.1	ca. 19.2	VT	269
Poly(2-vinylpyridine)	various solvents	25	--	82± 10	680± 30	300	2.20±0.10	9.7	VG	371
	benzene	15	--	72	635	300	2.12	9.0	VG	652
		25	--	71	633	300	2.11	8.9	VG	652
		30	--	69	605	300	1.98	7.85	VG	652
		40	--	62	570	300	1.90	7.2	VG	652
		50	--	57	590	300	1.96	7.65	VG	652
		60	--	62	605	300	2.02	8.15	VG	652
	chloroform	0	--	88	690	300	2.24	10.0	VG	652
		25	--	87.5	689	300	2.24	10.0	VG	652
Poly(4-vinylpyridine)	ethanol; water	25	--	94± 10	710± 30	300	2.37±0.10	11.2	VG	3(373,374)
Poly(5-vinyl-2-methylpyridine)										
	butanone; methanol	25	--	89± 5	652± 15	282	2.31±0.05	10.6	VG	375
	butyl acetate	21.8	--	83	675	282	2.39	11.4	VT	381
	4-methyl-2-pentanone	37.4	--	89	675	282	2.39	11.4	VT	381
	pentyl acetate	48.2	--	80	665	282	2.36	11.1	VT	381
Poly(vinylpyrrolidone)	water	~25	--	100± 15	720± 40	292	2.48±0.12	12.3	VG	3(380,382)
	acetone/water (66.6/33.2 vol)	25	--	75	650	292	2.22	9.85	VT	384
	butanone/2-propanol (96/4 vol)	25	--	81	630	292	2.16	9.3	VT	653
Poly(vinyl sulfate)	aqueous NaCl (0.5M)	20	--	25± 15	460± 60*	278	1.65±0.30*	5.45	VG	3(261)
Poly(vinylsulfonic acid)	aqueous KBr (0.349M)	5.7	--	68.8	650(788)*	296	2.18(2.66)*	9.6	VT	259,642
	aqueous KCl (0.349M)	5.5	--	68.2	650(786)*	296	2.19(2.66)*	9.6	VT	259,642
	(0.650M)	26.0	--	79.5	685(830)*	296	2.31(2.80)*	10.6	VT	259,642
	(1.002M)	44.5	--	80.3	680(832)*	296	2.33(2.81)*	10.8	VT	259,642
	aqueous NaBr (0.347M)	-0.8	--	85.5	730(882)*	296	2.46(2.98)*	12.1	VT	259,642
	aqueous NaCl (1.003M)	32.4	--	98.1	730(880)*	296	2.46(2.97)*	12.1	VT	259,642
	aqueous NaBr (1.008M)	40.1	--	94.5	725(875)	296	2.45(2.96)	12.0	VT	259,642
				1.8 COPOLYMERS						
Poly(acrylonitrile-co-styrene)										
38.3/61.7 mol, azeotropic	butanone	30	--	124	770	335	2.30±0.05	10.8	VG	593,595

* The values of $r_o/M^{1/2}$ and σ given in parentheses were obtained by using Φ_o = 1.39 x 10^{23}, while those given outside of it by using Φ_o = 2.5 x 10^{23}

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Polymer	Solvent	Temp. [°C]	$S_{oz}/M_w^{1/2}$ or a_p x 10^4 [nm]	K_θ x 10^3 [ml/g]	$r_o/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{o,gf}$	$C_\infty = r_o^2/nl^2$	Method	References
Poly(acrylonitrile-co-styrene) (Cont' d.)										
62.6/37.4 mol, random	butanone: dimethylformamide	30	--	170	840	362	2.32	10.8	VG	595
									VT	596
Poly(butadiene-co-styrene)										
84/16 mol, random	2-pentanone	23.8	--	23.8	460				VG	682
Poly(butyl itaconate-co-dibutyl itaconate)							3.2			
40.5/59.5 mol, random	acetone	25	--	83					VG	682
	methanol/m-xylene						2.7		VG	682
	(100/0 vol)	26	--	51			2.8		VG	682
	(80/20 vol)	25	--	62			3.1		VG	682
	(65/35 vol)	25	--	78			3.4		VG	682
	(50/50 vol)	25	--	98			3.4		VG	682
	(30/70 vol)	25	--	101			3.2		VG	682
	(10/90 vol)	25	--	82			2.5		VG	682
	(0/100 vol)	25	--	42					VT	598
Poly(p-chlorostyrene-co-methyl methacrylate)										
51.6/48.4 mol, random	benzene/hexane (60/40 vol)	22.3	--	84	660				VT	683
Poly(dimethyl itaconate-co-styrene)										
100/0 wt	benzene	25	--	30.4	495	245	2.02		VT	683
75/25 wt	toluene	25	--	35.4	509	260	1.96		VT	683
67/33 wt		25	--	40.3	544	286	2.04		VT	683
59/41 wt		25	--	45.7	555	270	2.05		VT	683
49/51 wt		25	--	55.3	690	278	2.12		VT	683
29.5/70.5 wt		25	--	63.4	617	287	2.15		VT	683
27/73 wt		25	--	63.7	618	288	2.15		VT	683
0/100 wt		25	--	78.0	601	302	2.17		VT	683
Poly(ethyl acrylate-co-methyl methacrylate)										
80/20 mol, random	acetone	25	--	--	823	308	2.67		VG	114
Poly(ethylene-co-α-methylstyrene). $[(ET)_m(MS)_n]_P$										
m/n = 3/4	butanone/cyclohexane (60/40 vol)	30	--	135	820	345	2.38		VT	604
m/n = 5/4	butanone/cyclohexane (75/25 vol)	30	--	140	930	373	2.22		VT	604
m/n = 5/7	cyclohexane	30	--	112	770	343	2.24		VT	604
Poly(methyl acrylate-co-styrene)										
50/50 mol, random	ethyl acetate	35	--	104± 2	1010± 20	314	3.22		VG	133
22/78 mol, random	various solvents	~30	--	75	650				VT,VG	129
33/67 mol, random		~30	--	78	650				VT	128
47/53 mol, random		~30	--	77	655				VG	128
59/41 mol, random		~30	--	76	650				VT,VG	129
76/24 mol, random		~30	--	75	650				VT	129
Poly(methyl methacrylate-co-styrene)										
100/0 mol, random	1-chlorobutane	40.8	--	50	583	308	1.89		VT	613
94/6 mol, random		40.8	--	59	618	308	2.00		VG	613

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Polymer	Solvent	Temp. [°C]	$S_{oz}/M_w^{1/2}$ or a_p x 10^4 [nm]	K_θ x 10^3 [ml/g]	$r_o/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
Poly(methyl methacrylate-co-styrene) (Cont'd.)										
52/48 mol, random	1-chlorobutane	40.8	--	95	728	305	2.39		VG	613
10/90 mol, random		40.8	--	89	707	302	2.34		VG	613
0/100 mol, random		40.8	--	80	665	302	2.21		VG	613
71/29 mol, random	various solvents	~30	--	66± 2	625± 95		2.05		VG,VT	614
44/56 mol, random	various solvents	~30	--	75± 2	655± 95		2.15		VG,VT	614
30/70 mol, random	various solvents	~30	--	77± 2	660± 95		2.17		VG,VT	614
three blocks (MSM) nearly equimolar	cyclohexanol	81	--	69	617	305	2.04		VT	616
Poly(styrene-co-vinylpyrrolidone)										
87/13 wt, random	butanone	25	--	90					VT	684
	butanone/2-propanol (75/25 vol)	25	--	76					VT	684
13/87 wt, random	butanone/2-propanol (97/3 vol)	25	341	75					LT,VT	684
Poly(styrene-co-monomethyl maleate)										
	acetone	26.4	--	51.1	575	295	2.02	8.15	VT	317
	aqueous NaCl (0.6M)	25	--	55	585	285	2.05	8.4	VT	317
Poly(trifluoronitrosomethane-co-tetrafluoroethylene)		35	--	38	510± 25	304	1.68±0.09		VT	3(685)
2. MAIN-CHAIN CARBOCYCLIC POLYMERS										
Poly(1,2-acenaphthenylene) trans	various solvents	25	--	36± 3	520± 20	354	1.47±0.05		VG	263
3. MAIN-CHAIN HETEROATOM POLYMERS										
3.1 POLY(OXIDES)										
Poly(butene oxide), see Poly[oxy(ethylethylene)]										
Poly(ethylene oxide), see Poly(oxyethylene)										
Poly[oxy(tert-butylethylene)]	benzene	25	--	230	930	377*	2.47	13.6	VG	385
Poly(oxy-1,2-cyclohexylene)	toluene	35	--	53	592	359	1.65		VG	472
Poly(oxydecamethylene)	benzene; chloroform	~30	--	240	980	570	1.68	7.5	VG	386
Poly[oxy(2,6-dimethyl-1,4-phenylene)]										
	chlorobenzene; toluene	25	--	168± 5	833± 10	715	1.16±0.02	2.7	VG	474
	benzene; carbon tetrachloride	25	--	175± 8	850± 10	715	1.13±0.02	2.6	VG	473
Poly[oxy(2,6-diphenyl-1,4-phenylene)]										
	chlorobenzene; toluene	25	--	80± 5	860± 20	500	1.32±0.04	3.5	VG	473

* These values of r_{of} of poly(epoxide) chains were calculated by $0.377/M_u^{1/2}$ [nm. $mol^{1/2}$ $gram^{-1/2}$], while those given without asterisk were calculated by $0.360/M_u^{1/2}$. The former is due to Allen et al. (Ref. 695). The latter is based on the assumption that all valence angles of skeleton are tetrahedral.

UNPERTURBED DIMENSIONS

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Polymer	Solvent	Temp. [°C]	$S_{dz}/M_w^{1/2}$ or a_p x 10^4 [nm]	K_θ x 10^3 [ml/g]	$r_p/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	Refetences
Poly(oxyethylene)	various solvents	~20	--	110± 10	750± 50	541	1.38±0.06	3.8	VG	3(389,390)
	aqueous K_2SO_4 (0.45M):	~40	--	115± 15	775± 30	541	1.43±0.08	4.1	VT	395,655
	aqueous $MgSO_4$ (0.39M)	25	--	129	790	541	1.46	4.25	VG	656,388
	benzene	25	--	110	840	541	1.55	4.8	VG	387
	acetone	50	--	170	840	541	1.55	4.8	VG	397
	various poor solvents	60	$d\ln r_o^2/dT = (0.23\pm0.02) \times 10^{-3}$ [deg^{-1}]						ST	655
	undiluted	30	--	87	700	423	1.68±0.05	5.5	VG,VT	397
Poly[oxy(ethylethylene)]	benzene; butanone; 2-propanol	30	--	110	730	427*	1.71	5.85	VT	396
	2-propanol	25	--	185	910	565	1.61	6.15	VG	398
Poly(oxyhexamethylene)	benzene; dioxane									
Poly(oxymethylene)	hexafluoroacetone sesquihydrate (1/1.7 mol)	25	--	430± 40	1200± 80	522	2.3 ±0.2	13.5	VG	402
Poly[oxy(2-methyl-6-phenyl-1,4-phenylene)]	dioxane/methylcyclohexane (1/1 vol)	25	--	110± 5	790± 20	580	1.36±0.04	3.7	VT	673
Poly[oxy(phenylethylene)]	toluene	25	--	75	640	364*	1.85	6.85	VG	385
Poly(oxypropylene)	benzene; methanol	25	--	115± 10	750± 25	472	1.59±0.05	5.05	VG	3(411)
	toluene/2,2,4-trimethylpentane (5/7 vol)	39.5	--	107.5	735	472	1.56	4.85	VT	411
	2,2,4-trimethylpentane	50	375	--	800	494*	1.62	5.75	LT	654
Poly(oxytetramethylene)	ethyl acetate/hexane (22.7/77.3 wt)	31.8	--	210	800± 20	566	1.62±0.03	5.25	VT	412
	ethyl acetate	50	--	180± 20	860± 30	556	1.55±0.05	4.8	VG	412
	ethyl acetate/hexane (22.7/77.3 wt)	30.4	--	267	975	556	1.75	6.1	VT	658
	diethyl maleate	33.5	--	243	945	556	1.70	5.8	VT	658
	2-propanol	44.6	--	231	930	550	1.67	5.6	VT	658
	undiluted	60	$d\ln r_o^2/dT = -1.33 \times 10^{-3}$ [deg^{-1}]						ST	659
Poly(oxytrimethylene)	acetone; benzene; carbon tetrachloride	30	--	128	795	550	1.45	4.2	VG	414

Poly(propylene oxide), see Poly(oxypropylene)
Poly(tetrahydrofuran), see Poly(oxytetramethylene)

3.2 POLY(ESTERS), POLY(CARBONATES)

Bisphenol A poly(carbonate), see Poly[oxycarbonyloxy-1,4-phenyleneisopropylidene-1,4-phenylene]
Poly(ethylene terephthalate), see Poly(oxyethyleneoxyterephthaloyl)

Poly(oxyadipoyloxydecamethylene)	chlorobenzene	25	--	100± 10	720± 25	540	1.33±0.05	3.55	VT	3(415)
Poly(oxybutynedioyloxyhexamethylene)	benzene; chloroform	20	--	180± 20	870± 30	627	1.39±0.05	3.9	VG	3(416)

* These values of r_{of} of poly(epoxide) chains were calculated by $0.377/M_u^{1/2}$ [nm. $mol^{1/2}$ $gram^{-1/2}$], while those given without asterisk were calculated by $0.360/M_u^{1/2}$. The former is due to Allen et al. (Ref. 656). The latter is based on the assumption that all valence angles of skeleton are tetrahedral.

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Polymer	Solvent	Temp. [°C]	$S_{ox}/M_w^{1/2}$ or a_p x 10^4 [nm]	K_θ x 10^3 [ml/g]	$r_\theta/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_\theta/r_{of}$	$C_\infty = r_\theta^2/nl^2$	Method	References
Poly[oxycarbonyloxy-1,4-phenyleneisopropylidene-1,4-phenylene]										
	methylene chloride; tetrahydrofuran	25	--	160± 20	680± 20	796	1.10±0.05		VG	3(478)
	butyl benzyl ether	170	--	210	840	796	1.18		VT	478
	cyclohexane/dioxane (36 1/63.9 wt)	25	--	210	840	796	1.18		VT	478
	chloroform; tetrahydrofuran	25	--	150± 13	840	796	1.05		VG	478
	hexane/tetrachloroethane (54/46 vol)	30	--	230	930	796	1.16		VT	694
Poly(oxy-1,4-cyclohexyleneoxysebacoyl)										
cis	chloroform	20	--	140± 20	800± 30	495	1.62±0.05		VG	3(480)
trans	chloroform	20	--	160± 20	840± 30	633	1.33±0.05		VG	3(480)
Poly(oxyethyleneoxyterephthaloyl)										
	phenol/tetrachloroethane (1/1 vol)	25	--	160± 15	840± 25	687	1.22±0.03	3.15	VG	3(491)
	o-chlorophenol	25	--	210	910	687	1.33	3.7	VG	484
	trifluoroacetic acid	30	--	242	975	687	1.42	4.25	VG	488
Poly(oxyfumaroyloxyhexamethylene)										
	chloroform	20-50	--	180± 20	870± 30	592	1.47±0.05	4.3	VG	3(417)
Poly[oxy(hexahydroterephthaloyl)oxyoctamethylene]										
cis	chloroform	20	--	140± 20	800± 30	495	1.62±0.05		VG	3(480)
trans	chloroform	20	--	160± 20	840± 30	633	1.33±0.05		VG	3(480)
Poly(oxyhexamethyleneoxy-2,9-dibutylsebacoyl)										
	benzene	20	--	155± 25	835± 70	457	1.82±0.15	6.6	VG	3(418)
Poly(oxyhexamethyleneoxysebacoyl)										
	benzene; chloroform	20	--	215± 60	910±100	540	1.70±0.17	5.8	VG	3(418,419)
Poly[oxyisophthaloyloxy-1,4-phenylene(fluoren-9-ylidene)-1,4-phenylene]										
	tetrachloroethan; tetrahydrofuran	20	--	210	902				VG	674
Poly(oxymaleoyloxyhexamethylene)										
	benzene; chloroform; tetrahydrofuran	20-50	--	135± 15	780± 30	510	1.55±0.05	4.8	VG	3(417)
Poly(oxysebacoyloxyhexadecamethylene)										
	chloroform	20	--	270± 40	1060± 50	555	1.80±0.10	6.5	VG	3(419)
Poly(oxysuccinyloxyhexamethylene)										
	benzene; chloroform; tetrahydrofuran	20-60	--	165± 30	650± 80	522	1.62±0.14	5.25	VG	3(417)
Poly(oxyundecanoyl)	chloroform	20	--	185± 60	880±100	550	1.60±0.16	5.1	VG	3(419,420)
				3.3 POLY(AMIDES)						
Poly(iminoadipoyliminohexamethylene) (Nylon 66)										
	aqueous HCOOH (80% vol)	25	--	190± 20	890± 40	545	1.63±0.08	5.3	VG	3(445,446)

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Polymer	Solvent	Temp. (°C)	$s_{ox}/M_{w,ox}^{1/2} s_p$ x 10^4 [nm]	K_b x 10^3 (ml/g)	$r_o/M^{1/2}$ x 10^4 [nm]	$r_{of}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
Poly(iminoadipoyliminohexamethylene) (Cont'd.)										
	aqueous HCOOH (90% vol), KCl (2.3M)	25	--	253	1010	545	1.85	6.85	VT	444
		25	--	192	935	545	1.72	5.95	VT	668,669
Poly[imino(1-oxohexamethylene)] (Nylon 6)									VG	3(453)
	conc. H_2SO_4	25	--	190± 10	890± 20	545	1.63±0.04	5.3	VT,VG	450
	aqueous HCOOH (65~85%)	25	--	229	970	545	1.78	6.35		
Poly[iminoterephthaloyliminо-1,4-phenylene(fluoren-9-ylidene)-1,4-phenylene]	dimethylformamide	25	--	408	~1200				VG	503

3.4 POLY(AMINO ACIDS)

Poly(β-benzyl-L-aspartate), see Poly(iminocarbonyl-L-benzyloxycarbonylethylidene)

Poly(γ-benzyl-L-glutamate), see Poly(iminocarbonyl-L-benzyloxycarbonylpropylidene)

Poly(iminocarbonyl-L-benzyloxycarbonylethylidene)	m-cresol	100	--	--	600	268	2.24±0.1	9.6	VA	670
Poly(iminocarbonyl-L-benzyloxycarbonylpropylidene)	dichloroacetic acid	25	--	58± 5	600± 20	259	2.32±0.08	10.3	VG	3(457)
		25	--				2.14	8.8	VA	670(457)
D,L	dichloroacetic acid; dimethylformamide	25	--	58± 5	600± 20	259	2.32±0.08	10.3	VG	3(459)
Poly(iminocarbonyl-L-carboxypropylidene), (Poly(L-glutamic acid))	phosphate buffer (Na^+, 0.3M; pH, 7.85)	17	--	--	720	337	2.14±0.1	8.8	VA	670
Poly[(methylimino)carbonylmethylene], (Poly(sarcosine))	water	20	--	50± 20	570± 90	455	1.25±0.20	3.0	VG	3(468)

3.8 POLY(URETHANES)

Poly(oxytetramethyleneoxycarbonylimino-2,4-tolylenеiminocarbonyl)	dimethylformamide	30	--	--	1030	515	2.0		VG	497

3.6 POLY(SULFIDES)

Poly(thiopropylene)	benzene	20	--	60	600				VG	436

3.7 POLY(PHOSPHATES)

Poly[oxy(hydroxyphosphinylidene)]	aqueous NaBr (0.35-0.415M)	25	--	50± 3	560± 20	310	1.51±0.04	6.6	VT,VG	3(422) 862
	aqueous LiBr						3.93	7.1	LT	863
	aqueous CsCl (0.96M)	30	--				2.25		LT	863
	aqueous LiCl (2.9M)	30								

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Polymer	Solvent	Temp. [°C]	$S_{oz}/M_w^{1/2}$ or S_p x 10^4 [nm]	X_c x 10^3 [ml/g]	$r_o/M^{1/2}$ x 10^4 [nm]	$r_{oj}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_o/r_{oj}$	$C_\infty = r_o^2/nl^2$	Method	References
Poly[oxy(hydroxyphosphinylidene)] (Cont'd.)										
	aqueous NaCl (0.52M)	30					2.79		LT	663
3.8 POLY(SILOXANES), POLY(SILSESQUIOXANES), POLY(SILMETHYLENES)										
Poly(dimethyl siloxane), see Poly[oxy(dimethylsilylene)]										
Poly(dimethylsilmethylene)	heptane/propanol (68.8/31.2 vol)	25	540	--	988	450	2.2	--	LT	671
Poly(dimethylsiltrimethylene)	heptane	25	--	--	1200	480	2.5	--	LG	671
Poly(diphenylsiltrimethylene)	cyclohexanol/toluene (63.5/36.5 vol)	25	590	--	1160	322	3.6	--	LT	671
Poly[oxy(dimethylsilylene)]	butanone; toluene	~25	--	80± 5	670± 20	482	1.39±0.05	6.25	VT,VG	3(427,428),664
	various theta solvents	2-90	268± 10	--	612± 13	482	1.27±0.03	5.2	LT	425
	$C_6F_{18}/C_2Cl_4F_2$ (33/67 wt)	22.5	--	106	740	482	1.54	7.6	VT	424
	ethyl iodide	2	--	70	640	482	1.33	5.7	VT	425
	bromocyclohexane	29	--	74	655	482	1.36	6.0	VT	425
	bromocyclohexane/phenetole (6/7 vol)	36	--	75	660	482	1.37	6.1	VT	425
	chlorobenzene/dimethyl phthalate (45/6 vol)	57.5	--	76	660	482	1.37	6.1	VT	425
	bromobenzene	78.5	--	76	660	482	1.37	6.1	VT	425
	phenetole	89.5	--	73	650	482	1.35	5.9	VT	425
	undiluted	40-100 dln	$r_o^2 = (0.78\pm0.06) \times 10^{-3}$ [deg^{-1}]						ST	665
	diluted with liquid silicon	30-105 dln	$r_o^2 = (0.71\pm0.13) \times 10^{-3}$ [deg^{-1}]						VT	665
Poly[oxy(dipropylsilylene)]	2-pentanone	76	--	87.1	700	372	1.89	12.0	VT	433
	toluene	10	--	109	750	372	2.04	14.0	VT	433
Poly[oxy(methylphenylsilylene)]	diisobutylamine	30.4	--	51.5	575	363	1.58	8.35	VT	434
Poly[oxy(γ-trifluoropropylmethylsilylene)]	cyclohexyl acetate	25.0	--	41.0	550(648)*	341	1.61(1.90)*	6.3	VT	435
	methyl hexanoate	72.8	--	44.5	585(687)*	341	1.66(1.96)*	6.65	VT	435
Poly(phenylsilsesquioxane)	1,2-dichloroethane	50.5	--	--	1160	--	--		VT	675

*The values of $r_o/M^{1/2}$ and σ given in parenthesis were obtained by using $\Phi_o = 1.5 \times 10^{23}$, while those given outside by using $\Phi_o = 2.5 \times 10^{23}$.

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Polymer	Solvent	Temp. [°C]	$S_{DZ}/M_w^{f/2}$ or s_p [nm]	$K_\theta \times 10^3$ [ml/g]	$r_o/M^{1/2} \times 10^4$ [nm]	$r_{of}/M^{1/2} \times 10^4$ [cm]	$\sigma = r_o/r_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
3.9 POLY(HETEROCYCLICS)										
Poly[(1,3-dihydro-3-oxo-isobenzofuran-1-ylidene)-1,4-phenyleneoxy-isophthaloyloxy-1,4-phenylene]	tetrachloroethane: tetrahydrofuran	20	--	185	880	--	--		VG	674
Poly[(1,3-dihydro-3-oxoisobenzofuran-1-ylidene)-1,4-phenyleneiminoterephthaloylimino-1,4-phenylene]	dimethylformamide	25	--	558	~1500				VG	503
Poly[(D,L-1,2-pyrrolidindiyl)carbonyl]	water	25	--	ca. 25	ca. 570	390	ca. 1.5		VT	3(507)
Poly(1-isobutyl-2,5-dioxopyrrolidin-3,4-diyl)	butyl acetate	21	--	132	780	--	--		VG	512
Poly(1-p-tolyl-2,5-dioxopyrrolidin-3,4-diyl)	dimethylformamide	21	--	75	670	--	--		VG	513
3.10 COPOLYMERS (MALEIC ANHYDRIDE, SULFONES, SILOXANES)										
MALEIC ANHYDRIDE COPOLYMERS										
Poly[(tetrahydro-2,5-dioxo-3,4-furandiyl)-1-phenylethylene]	tetrahydrofuran	30	--	82.6	732	383	1.91		VG	508
SULFONES										
Poly[sulfonyl(butylethylene)]	hexyl chloride	13	--	87± 2	825± 10	350	1.78±0.02		VT	666
		13	296± 9	--	725± 22	350	2.07±0.07		LT	666
	benzene/cyclohexane (43/57 vol)	25	--	68± 2	642± 7	350	1.84±0.02		VG	348
	butanone/2-propanol (30~37/70~63 vol)	8~24	--	53	580	350	1.86		VT	439
	dioxane/hexane (40/60 vol)	20	--	65± 2	638± 7	350	1.83±0.02		VT	438
Poly[sulfonyl(1-methyl-1-propylethylene)]	butanone/hexane (35.4/64.6 vol)	11.5	--	91	700				VT	439
Poly[sulfonyl-(phenylethylene)]	tetrahydrofuran	30	--	57.4	648	425	1.53		VG	440,667
SILOXANES										
Poly(dimethyl siloxane-co-diphenyl siloxane)										
95/5 mol	bromobenzene	9	--	100	742	--	1.56		VT	596
66/34 mol	benzene/2-propanol (44/56 wt)	92	--	74	670	--	1.70		VT	596
55/45 mol	dimethylphthalate	82.5	--	78	675	--	1.81		VT	596
	ethanol/toluene (37/63 wt)	29.5	--	78	675	--	1.81		VT	596

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Polymer	Solvent	Temp. [°C]	$S_{ag}/M_{w\ or\ sp}^{1/2} \times 10^4$ [nm]	$K_o \times 10^3$ [ml/g]	$r_o/M^{1/2} \times 10^4$ [nm]	$t_{of}/M^{1/2} \times 10^4$ [nm]	$\sigma = t_o/t_{of}$	$C_\infty = r_o^2/nl^2$	Method	References
4. CELLULOSE AND DERIVATIVES										
Amylose	dimethyl sulfoxide; ethylene diamine	25	--	58± 12	680± 50	335	1.79±0.15		VG	3(518)
	various solvents	25	--	--	700	335	2.08		VT,VG	517
	aqueous KCl (0.33M); dimethyl sulfoxide	25	--	110± 5	750± 25	335	2.24±0.08		VT,VG	3(520)
	aqueous KCl (0.5M)	25	--	61	625	335	1.87		VT	523
	aqueous KOH (0.15M)	25	--	164					VG	519
	aqueous KCl (0.33M)	25	--	--	--	--	--	5.2*	VT	530
	nitromethane	22.5	--	--	920	335	2.75		LG	527
Amylose triacetate	chloroform; nitromethane	30	--	47± 10	580± 60	250	2.32±0.24		VG	3(524)
		30	--	48	580	250	2.32		VG	676
		30	--		800± 15	250	3.2 ±0.06		VG	677
Amylose tricarbanilate	acetone; dioxane; pyridine	20	--	27± 5	470± 30	187	2.51±0.18		VG	3(528)
	dioxane/methanol (49/51 vol)	20	--	--	2180	--	11.7		LT	678
Carboxymethyl amylose, sodium salt										
	aqueous NaCl (0.65M)	37.5					2.62	7.9*	VT	608
	aqueous NaCl (0.5M; pH 8)	35					2.95	10.0*	VA	530
	aqueous NaCl (0.78M; 0.02% NaN_3)	35					2.15	5.3*	VA	531
Diethylaminoethyl amylose hydrochloride										
	aqueous NaCl (0.78M; 0.02% NaN_3)	35						6.4*	VA	531
Cellulose	cuprietbylene diamine	25	--	180± 80	900±150	620	1.45±0.25		VG	3(537)
	cadoxen	25	0.24	485	1250	620	2.0		VG	891,534
Cellulose triacetate	acetone; chloroform; o-cresol ethylacetate; dioxane; methyl acetate; tetrahydrofuran	25-30	--	108± 10	750± 30	465	1.61±0.07		VG	3(541,542)
		25			730~740	465	1.57~1.59		VG	680
Cellulose tributyrate	butanone	30	--	97± 15	730± 40	408	1.78±0.10		VG	3(544)
	dodecane/tetralin (75/25 vol)	130	--	82	690	408	1.68		VT	544
Cellulose tricarbanilate	acetone; dioxane; pyridine	20	--	130± 30	810± 70	346	2.34±0.20		VG	3(528)
	acetone	~25	--	65± 3	635	346	1.83		VG	693
	cyclohexane	~25	--	83.5±3	680	346	1.89		VG	693
	dioxane	~25	--	44± 3	580	346	1.61		VG	693
	dioxane/methanol (42.5/57.5 vol)	20	--	--	1120	348	3.24		LT	678
	anisol	94	ca. 1000	130	805	346	2.32		LT,VT	546
	cyclohexanol	73	ca. 1050	--	875	348	2.52		LT	546

* These values of the characteristic ratio C_∞ of cellulosic chains were obtained by $C_\infty = r_o^2/DP\ l^2$, where DP is the degree of polymerization and l = 0.425 [nm].

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Polymer	Solvent	Temp. [°C]	$S_{0g}/M_w^{1/2}$ or a_p x 10^4 [nm]	K_θ x 10^3 [ml/g]	$r_0/M^{1/2}$ x 10^4 [nm]	$r_{0f}/M^{1/2}$ x 10^4 [nm]	$\sigma = r_0/r_{0f}$	$C_\infty = r_0^2/nl^2$	Method	References
Cellulose trihexanoate	dimethylformamide	31	--	240	980	370	2.65		VT	547
	dioxane/water (100/7 vol)	63	--	224	960	370	2.60		VT	547
Cellulose trinitrate	acetone; ethyl acetate	~25	--	130± 30	910± 50	458	1.77±0.11		VG	3(535,537,548,549)
	acetone	25	360	--	720	458	1.57		LG	3(549)
		22	0.26±0.01	--	930± 15	458	2.03±0.03		XS	641
		~20	0.40~0.70	--	1180 ~ 1580	458	2.58~3.46		XS	678
		20	0.22~0.28	--	850 ~ 975	458	1.85~2.12		XS	678
		25	970	--	2410	462	4.7		LG	686
(Nitrogen %, 13.9)	acetone	25	630	--	1780	475	3.4		LG	688
(Nitrogen %, 12.2)	acetone	30	700	--	2050	487	3.8		LG	565
(Nitrogen %, 13.5)	ethyl acetate	20	0.48	--		486	2.5		XS	687
(Nitrogen %, 12.0)	acetone	30	--	127± 15	800± 40	340	2.35±0.12		VG	3(544)
Cellulose trioctanoate	toluene	140	--	113	770	340	2.27		VT	544
	dimethylformamide	48	--	129	805	340	2.37		VT	544
	γ-phenylpropanol	25	--	292± 10	970± 20	520	1.87±0.03		VG	3(559)
Ethyl cellulose	methanol	25	--	550± 80	1300± 50	545	2.38±0.09		VG	3(560)
Ethyl hydroxyethyl cellulose	water	25	--	335	1100	545	2.0		VG	691,560,692
		25	--	250	1000	514	1.9		VG	691,561
Hydroxyethyl cellulose	cadoxen; water	25	--	820±100	1500± 60	581	2.58±0.10		VG	3(563)
Methyl cellulose	water	25							VG	691,565
Sodium carboxymethyl cellulose							2.0		VG	691,565
	cadoxen	25	--	957	1130	563	2.4		VG	681
	aqueous NaCl (0.005~0.2M)	25	--	420	1190	582			VG	688
Sodium cellulose xanthate	aqueous NaOH (1M)	30	--	280	1380		2.5	--	VA	
Hyaluronic acid	aqueous HCl (0.1M)	25	--	--	--	--				

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Note: References 609-611 and 576-589 are for biological polymers such as collagen, gelatin and poly(nucleotides), which do not appear in the present tables.